ORDER NO. KMS0110592C3

Service Manual

PROPRIETARY TELEPHONE

KX-T7730X

(for Asia, Middle Near East, Africa and Latin America)

SPECIFICATIONS

■ SPECIFICATIONS

Station Loop Limit:	40 ohms
Cabling Method:	2 pair wire
Jacks:	Handset Jack, TEL Jack, Headset Jack
Display:	16 digits (max.)
Dimensions:	183 (W)×107 (H)×218 (D)mm with handset (Low Angle) 180 (W)×130 (H)×207 (D)mm with handset (High Angle)
Weight:	0.8 kg

Design and specifications are subject to change without notice.

Panasonic

1. INTRODUCTION

1.1. NOTE

When you note the serial number, write down all of the 11 digits.

The serial number may be found on the label affixed to the bottom of the unit.

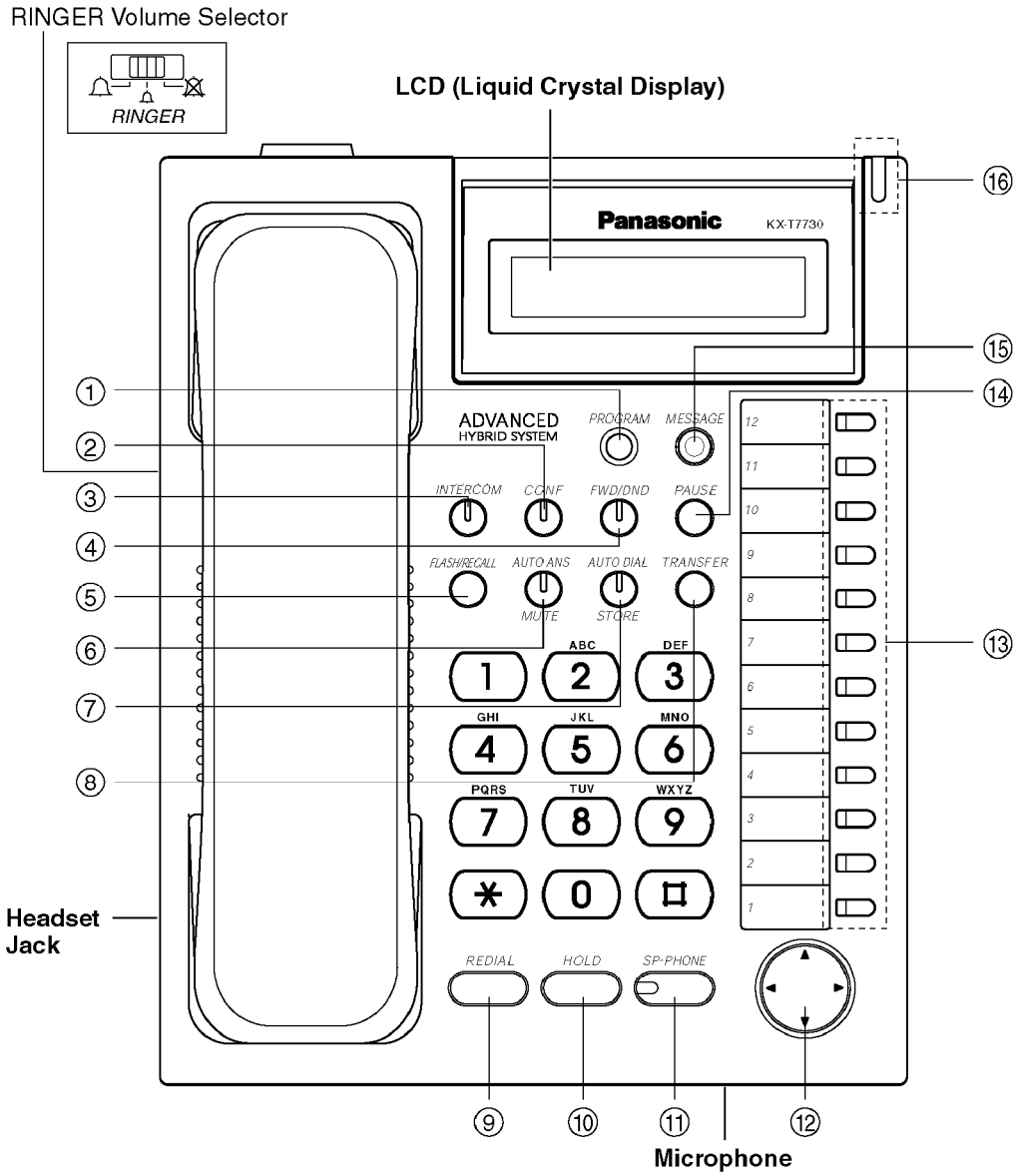
1.2. FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.

When repairing, the following precautions will help prevent recurring malfunctions.

1. Cover the plastic parts boxes with aluminum foil.
2. Ground the soldering irons.
3. Use a conductive mat on the worktable.
4. Do not touch IC or LSI pins with bare fingers.

2. LOCATION OF CONTROLS


RINGER Volume Selector
RINGER
LCD (Liquid Crystal Display)
Panasonic
KX-T7730
ADVANCED
HYBRID SYSTEM
PROGRAM
MESSAGE
INTERCOM
CONF
FWD/DND
PAUSE
FLASH/RECALL
AUTO ANS
AUTO DIAL
TRANSFER
MUTE
STORE
ABC
DEF
GHI
JKL
MNO
PQRS
TUV
WXYZ
REDIAL
HOLD
SP-PHONE
Headset Jack
Microphone
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯

① **PROGRAM:** Used to enter and exit the programming mode. (For station programming mode only. For system programming, please use another Digital Proprietary Telephone with display.)

② **CONF (Conference):** Used to establish a multiple party conversation.

③ **INTERCOM:** Used to make or receive intercom calls.

④ **FWD/DND (Call Forwarding/Do Not Disturb):** Used to perform Call Forwarding or Do Not Disturb.

⑤ **FLASH/RECALL:** Used to disconnect the current call and make another call without hanging up.

⑥ **AUTO ANS (Auto Answer) :** Used to receive an incoming call in the hands-free mode.
MUTE: Used to mute the microphone during a conversation.

⑦ **AUTO DIAL/STORE:** Used for speed dialling or storing program changes.

⑧ **TRANSFER:** Used to transfer a call to another party.

⑨ **REDIAL (ordinarily):** Used to redial.

⑩ **HOLD:** Used to place a call on hold.

⑪ **SP-PHONE:** Used for the handsfree operation.

⑫ **NAVIGATOR KEY:** Used to adjust the volume and the display contrast or select desired items for each function.

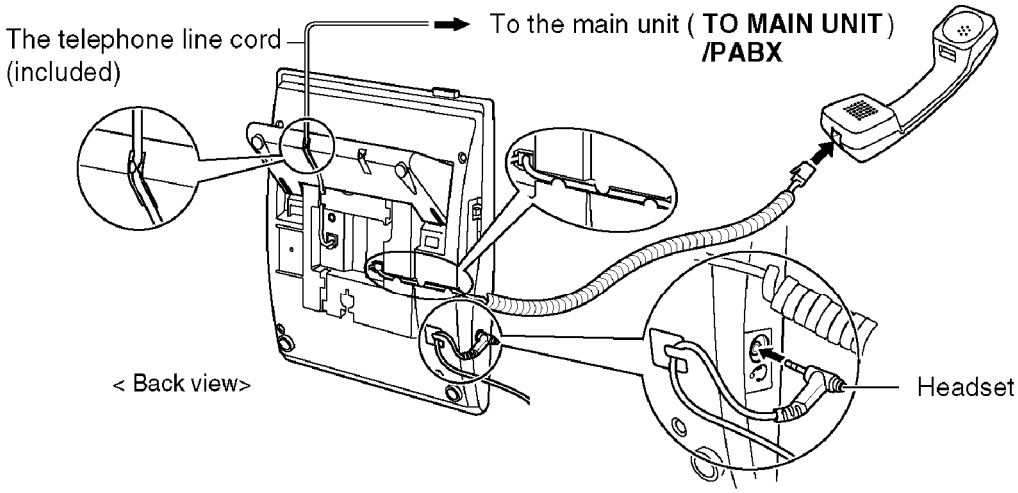
⑬ **Flexible Outside (CO) Line Button:** Used to make or receive an outside call. Pressing this button seizes an idle outside line automatically. (Button assignment is required.) Also used as the desired function buttons. (Button assignment is required.)

⑭ **PAUSE:** Used to insert a pause during dialling.

⑮ **MESSAGE:** Used to leave a message waiting indication or call back the party who left the message waiting indication.

⑯ **Message/Ringer Lamp:** When you receive a call, the lamp flashes. When someone has left you a message, the lamp lights on.

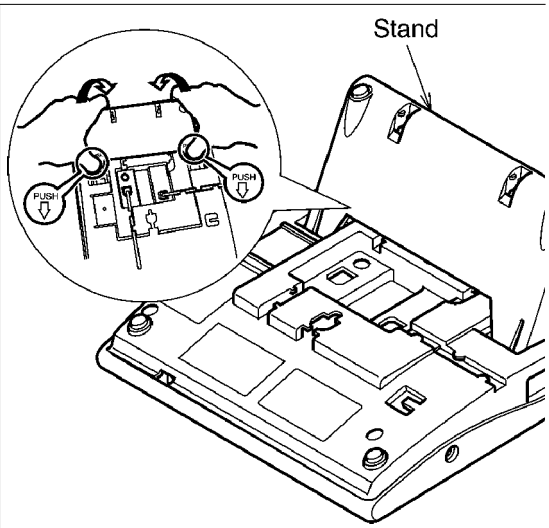
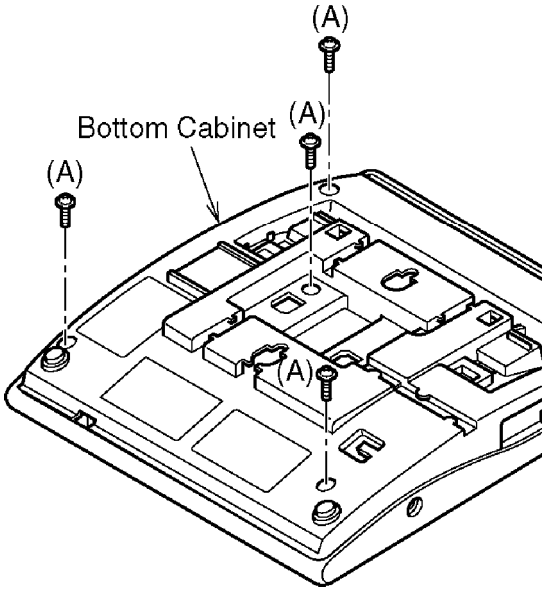
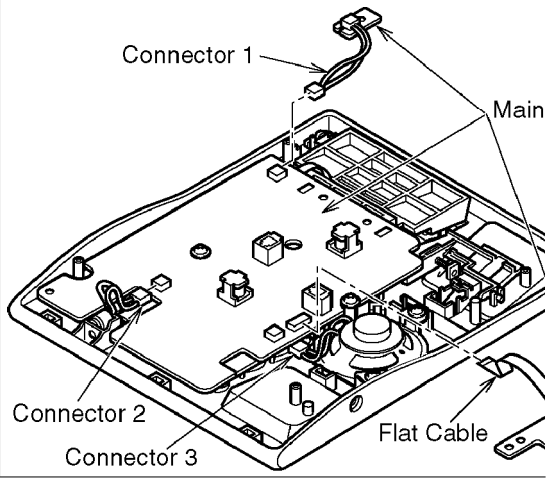
3. CONNECTION



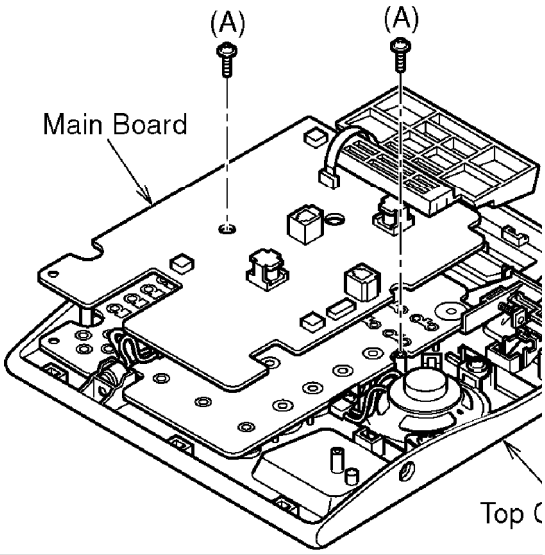
Caution:

Ensure the cord is inserted in the groove to prevent damage to the connector.

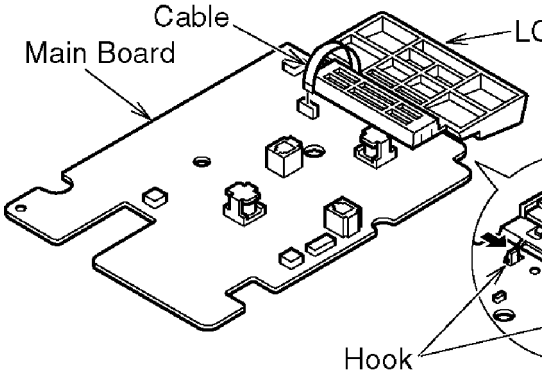
4. DISASSEMBLY INSTRUCTIONS

1. Remove the Stand.	
2. Remove 4 Screws (A). **3. Remove the Bottom Cabinet.**	
4. Remove the Connector (1~3) and the Flat Cable from the Main Board.	

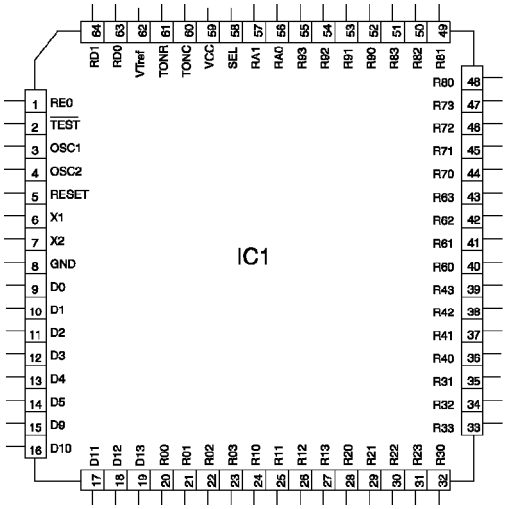
5. Remove 2 Screws (A).
6. Remove the Main Board from the Top Cabinet.



7. Remove the Cable from the Main Board.
8. Remove the LCD Holder by sliding the Hook in the direction of the arrow from the Main Board.



5. IC DATA



Program ROM:	8kbyte(4bit)
Internal RAM:	4kbit
Clock Frequency:	4MHz
Power Supply Voltage:	2.7~6V

Pin No.	Terminal Name	I/O Function	I/O Setting	Description
1	RE0	I	I	LCD linage H:3line Model L:Other
2	TEST	I	-	Vcc Connection
3	OSC1	I	-	4MHz
4	OSC2	O	-	4MHz
5	RESET	I	-	
6	X1	I	-	Not used Vcc Connection
7	X2	O	-	Open
8	GND	-	-	
9	D0	I/O	O	HS SM mute
10	D1	I/O	O	HF MM mute
11	D2	I/O	O(I)	HF SM mute(This is also model code.)
12	D3	I/O	O	HF Relay
13	D4	I/O	O	HS power on
14	D5	I/O	O	HF power on (CS)
15	D9	I/O	I	HOLD Key L:Key press
16	D10	I/O	O	DO
17	D11	I/O	O	DCLR
18	D12	I	I	DI
19	D13	I	I	DI_INT
20	R00	I/O	I	KEY-IN0
21	R01	I/O	I	KEY-IN1
22	R02	I/O	I	KEY-IN2
23	R03	I/O	I	KEY-IN3
24	R10	I/O	I	KEY-IN4
25	R11	I/O	I	KEY-IN5
26	R12	I/O	I	KEY-IN6
27	R13	I/O	I	Hook-SW
28	R20	I/O	O	KEY/LED-COM0
29	R21	I/O	O	KEY/LED-COM1
30	R22	I/O	O	KEY/LED-COM2
31	R23	I/O	O	KEY/LED-COM3
32	R30	I/O	I/O	KEY-COM4
33	R33	I/O	O(I)	LCD_Contrast1(This is also model code.)
34	R32	I/O	O	*LCD_Contrast0
35	R31	I/O	I/O	KEY-COM5
36	R40	I/O	I	Ring vol off
37	R41	I/O	O	LCD_CLK
38	R42	I/O	O(I)	LCD_STB/(Model Code)
39	R43	I/O	O	LCD_DO
40	R60	I/O	O	LED0
41	R61	I/O	O	LED1

41	R61	I/O	O	LED1

Pin No.	Terminal Name	I/O Function	I/O Setting	Description
42	R62	I/O	O	LED2
43	R63	I/O	O	LED3
44	R70	I/O	O	LED4
45	R71	I/O	O	LED5
46	R72	I/O	O	LED6
47	R73	I/O	O	LED7
48	R80	I/O	O	HF SP vol 1
49	R81	I/O	O	HF SP vol 2
50	R82	I/O	O	HF SP vol 3
51	R83	I/O	O	HF SP vol 4
52	R90	I/O	O	Tone cont 1
53	R91	I/O	O	Tone cont 2
54	R92	I/O	O	Tone cont 3
55	R93	I/O	O	Tone cont 4
56	RA0	I/O	O	HS SP vol 1
57	RA1	I/O	O	HS SP vol 2
58	SEL	I	I	A Four-minute Cycle Vcc Connection
59	VCC	-	-	
60	TONC	O	O	DTMF Column
61	TONR	O	O	DTMF Row
62	VTref	-	-	DTMF Standard Power
63	RD0	I	I	Head Set Detention
64	RD1	I	I	TONE-DET

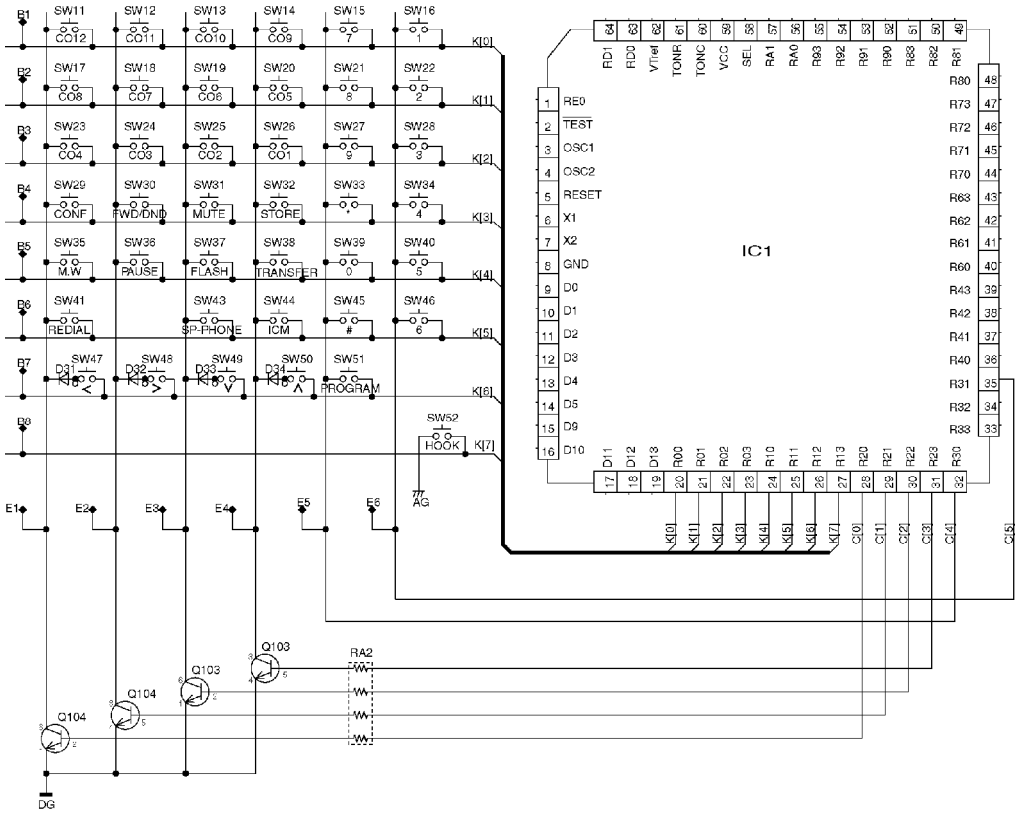
6. BLOCK DIAGRAM

7. CIRCUIT OPERATIONS

7.1. KEY INPUT CONTROL CIRCUIT

Sequential input information is executed by dynamic scanning.
The ports R20~R23, R30, R31 of IC1 are brought to high status consecutively.
If a key is pressed, the key-in information input is executed by ports R00~R03, R10~R13.

Circuit Diagram

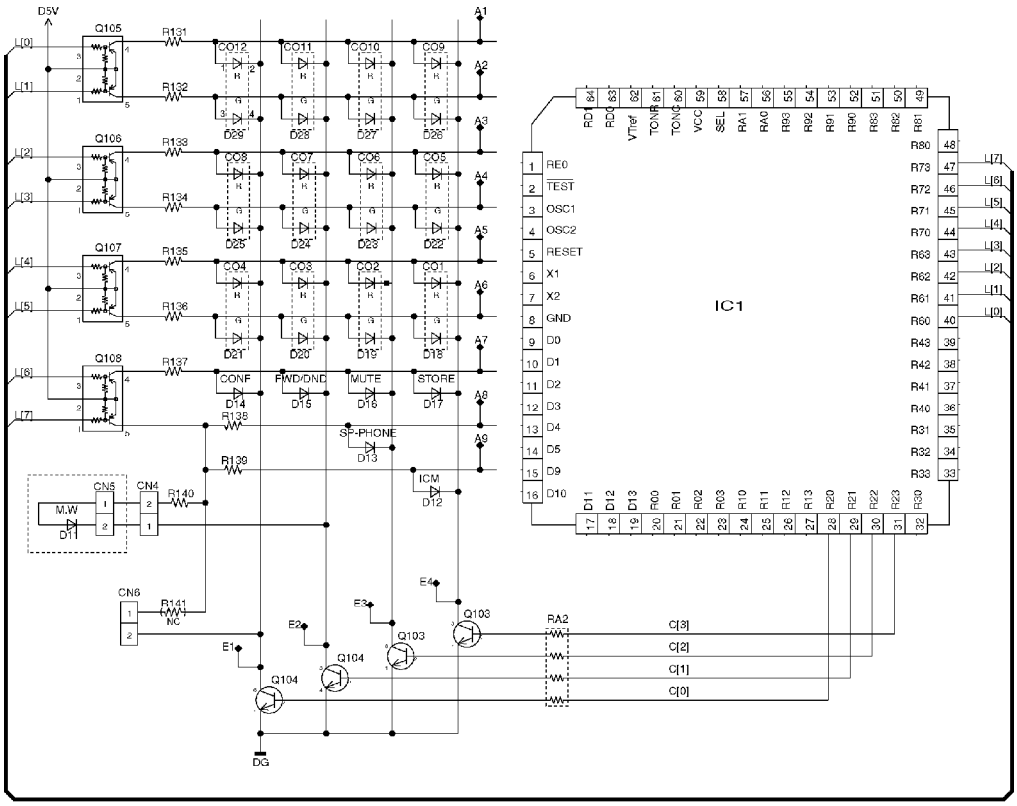


7.2. LED CIRCUIT

Circuit Operation:

The LED executes dynamic lighting for the status indicators, and control is executed by the output ports R20~R23, R60~R63, R70~R73.

Circuit Diagram



7.3. DATA COMMUNICATION CIRCUIT

Function:

The data communication circuit serves the following functions:
Information exchanger between the PBX and proprietary telephone, key input information as well as data for the LED control, LCD control, etc. This information is continuously exchanged at all times.

Circuit Operation:

When the proprietary telephone receives an IRQ signal from the PBX and after sending the key input information (19 pulses) to the PBX and receiving data (47 pulses) for the LED control, etc., the proprietary telephone will return to the PBX an acknowledge signal.

1) Reception

The data from the PBX is received via the H and L lines along the path shown below.

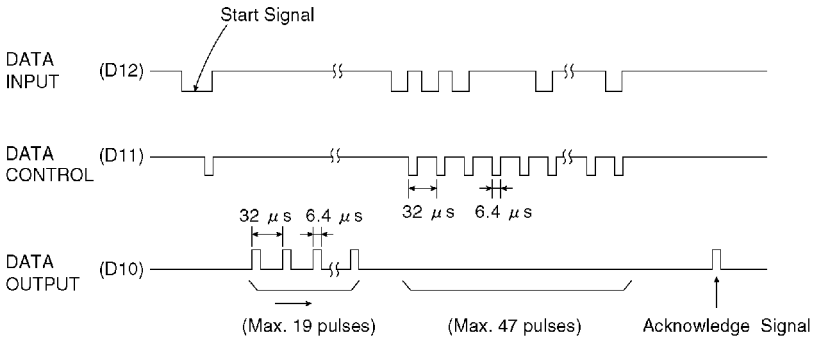
H, L Line → D2 → T2 → R106 → Q102 → IC2 → IC1 Pin 18

2) Transmission

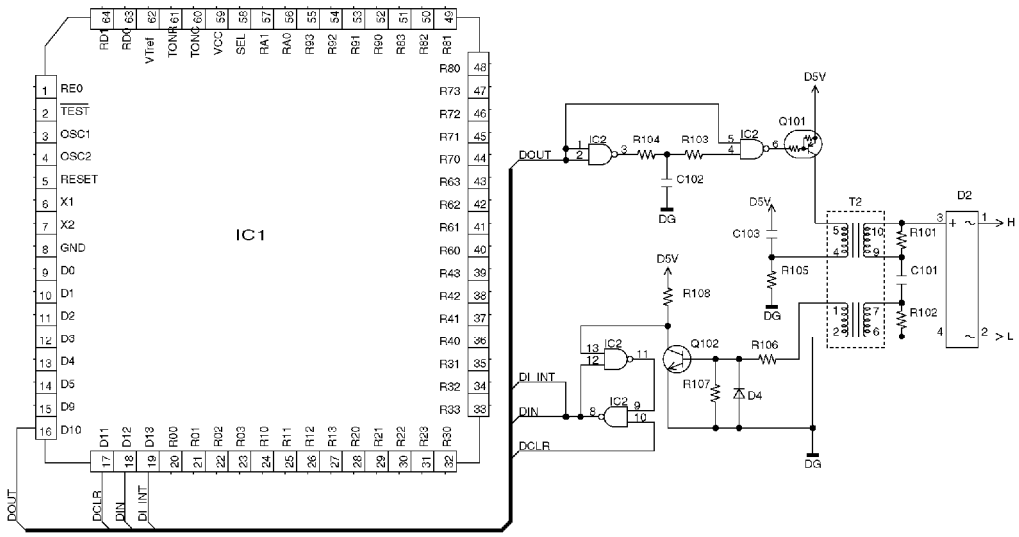
The data to the proprietary telephone is transmitted along the following path.

IC1 Pin 16 → IC2 → Q101 → T2 → D2 → H, L Line

Timing Chart



Circuit Diagram



7.4. TONE GENERATION CIRCUIT

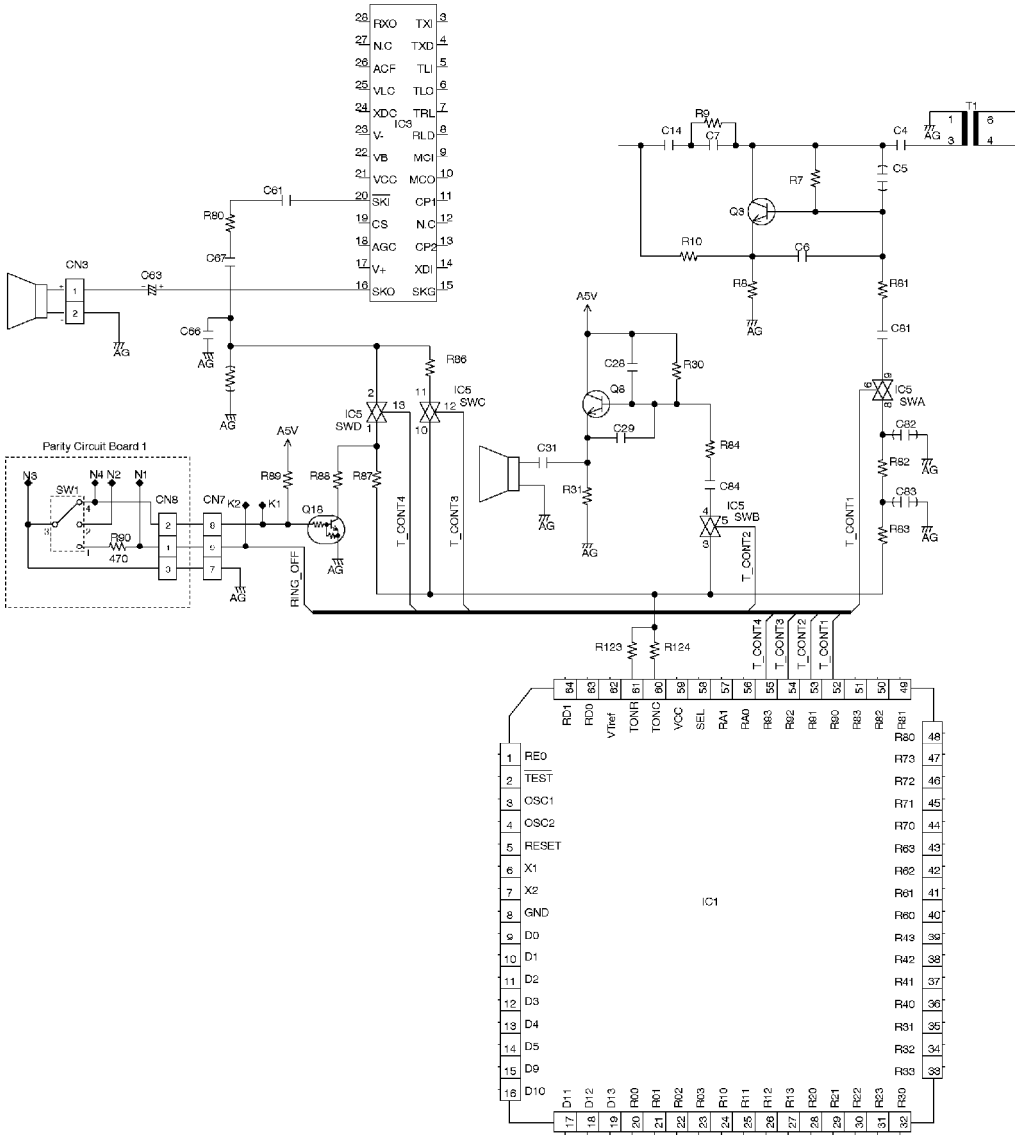
Function:

This circuit generates all system tones including COL, extension, busy, DTMF signals and key in confirmation tones during the power failure mode and is comprised of IC1(DTMF Generator) and IC5 (Analog Switch).

Circuit Operation:

For an output of a single row tone, the row terminal and the each column terminals intersecting with it are required to be brought a low state. For a dual tone output, one row terminal and one column terminal are brought to low state.

Circuit Diagram



CONDITION	IC1 pin52	IC5 SWA	IC1 pin53	IC5 SWB	IC1 pin54	IC5 SWC	IC1 pin55
Ringing	L	OFF	L	OFF	L	OFF	H
Call Waiting	L	OFF	L	OFF	H	ON	L
Tone Dial (Handset)	H	ON	H	ON	L	OFF	L
Tone Dial (Speakerphone)	H	ON	L	OFF	H	ON	L

7.5. HANDSET CIRCUIT

1) Transmission Signal Path

The input signal for the handset microphone is sent through the telephone line via the following path:

Handset MIC(JK2) → JK3 → C24 → R26 → C34 → Q5 → C21 → R21 → Q3 → C4 → T1 →

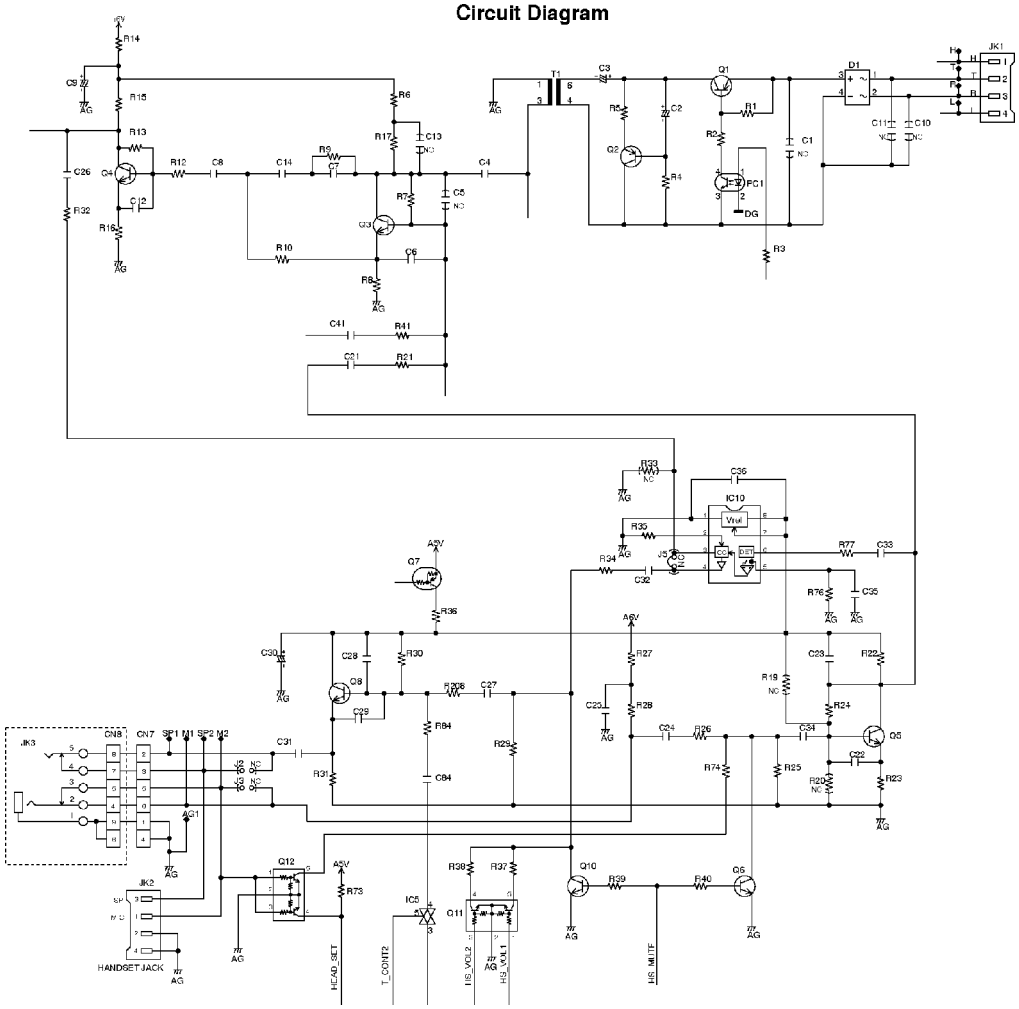
C3 → Q1 → D1 → Telephone Line

2) Reception Signal Path

The input signal from the telephone line is sent to the receiver through the following path:

Telephone Line → D1 → Q1 → C3 → T1 → C4 → Q3 → R10 → C8 → R12 → Q4 → C26 → R32 → IC10 → C32 → R34 → C27 → R208 → Q8 → C31 → JK3 → JK2 → Handset Speaker

Circuit Diagram



7.6. SPEAKERPHONE CIRCUIT

Function:

This circuit controls the automatic switching of the transmitted and received signals to and from the telephone line, when the unit is used in the hands-free mode.

Circuit Operation:

The speakerphone can only provide a one-way communication path at a given time, but cannot do both simultaneously.

Therefore, a switching circuit is necessary to control the flow of the outgoing and incoming signals.

In other words, it can either transmit an outgoing signal or receive an incoming signal at a given time, but cannot do both simuitaneousiy. Therefore, a switching circuit is necessary to control the flow of the outgoing and incoming signals.

This switching circuit is contained in IC3 and consists of a Voice Detector, Tx Attenuator, Rx Attenuator, Comparator and Attenuator Control. The circuit analyzes whether the Tx (transmit) or

Rx (receive) signal is louder, and then it processes the signals so that the louder signal is given precedence.
The Voice Detector provides a DC input to the Attenuator Control corresponding to the Tx signal.
The Comparator receives a Tx and Rx signal, and supplies DC input to the Attenuator Control corresponding to the Rx signal.
The Attenuator Control provides a control signal to the Tx and Rx Attenuator to switch the appropriate signals ON and OFF.
The Attenuator Control also detects the level of the volume control to automatically adjust the volume for changing ambient conditions.

1) Control Signal Path

Control signal for transmission and reception are input to IC3 via the following path:
(Transmission Control Signal Path)
MIC(CN2) → IC3 Pin 9 → IC3 Pin 10 → IC3 Pin 3 → IC3 Pin 4 → IC3 Pin 5
(Reception Control Signal Path)
Telephone Line → Q3 → Q4 → IC3 Pin 7

2) Transmission/Reception Switching

The comparison result between Tx and Rx output is a DC level at IC3 Pin 26.
Tx level is high ..... Pin 21-Pin 26=6mV
Rx level is high ..... Pin 21-Pin 26=150mV
The comparator output is connected to the attenuator control inside IC3.

3) Voice Detector

The output of the mic amp (Pin 10 of IC3) is supplied to Pin 14 of IC3 as a control signal for the voice detector.

4) Attenuator Control

The attenuator control detects the setting of the volume control through Pin 25 of IC3 and automatically adjusts the volume for changing ambient conditions.

5) Transmission Signal Path

The input signal from the microphone is sent through the circuit via the following path:
MIC(CN2) → C64 → R206 → C59 → IC3 Pin 9 → IC3 Pin 10 → R45 → C48 → IC3 Pin 3 → IC3 Pin 4 → C41 → R41 → Q3 → C4 → T1 → C3 → Q1 → D1 → JK1 → Telephone Line

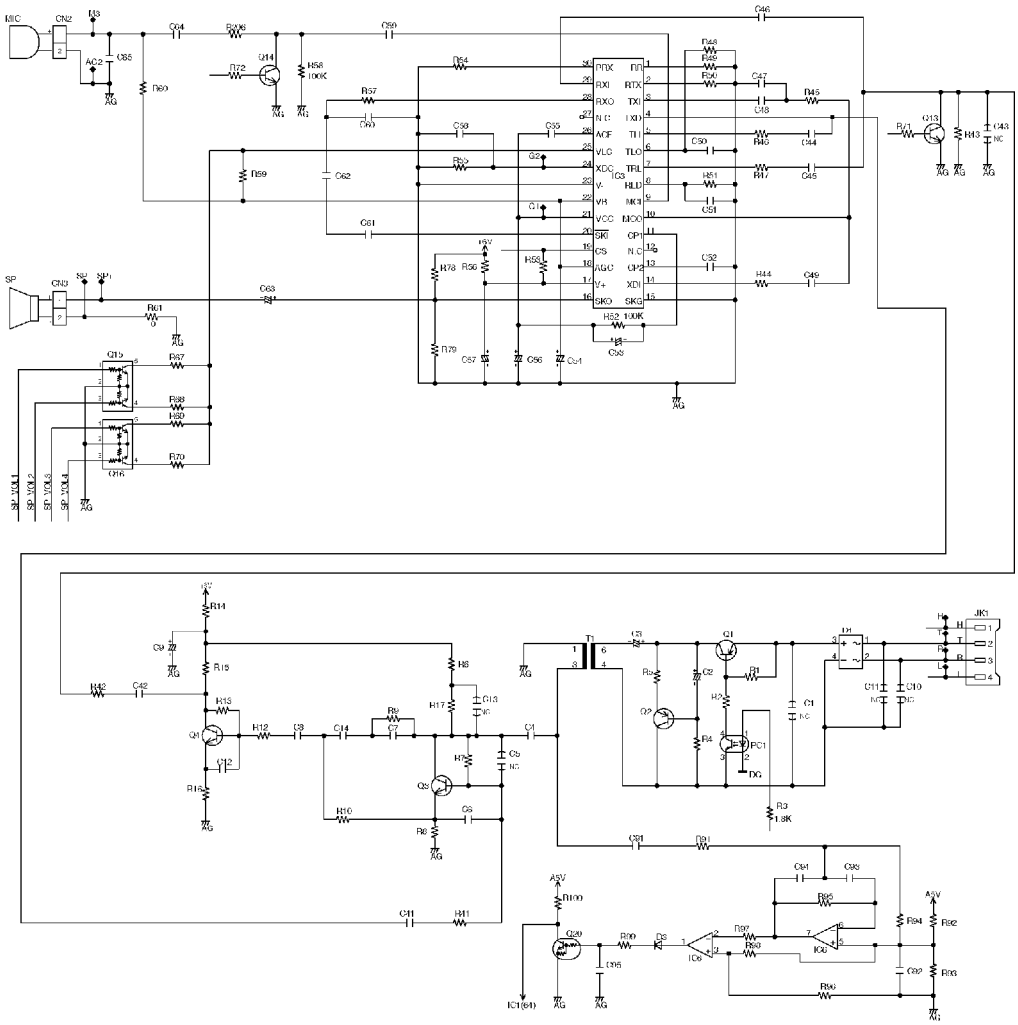
6) Reception Signal Path

Signals received from the telephone line are output to the speaker via the following path:
Telephone Line → D1 → Q1 → C3 → T1 → C4 → Q3 → R10 → C8 → R12 → Q4 → C42 → R42 → C46 → IC3 Pin 29 → IC3 Pin 28 → R57 → C62 → C61 → IC3 Pin 20 → IC3 Pin 16 → C63 → CN3 Speaker

7) Busy Tone Detector Circuit

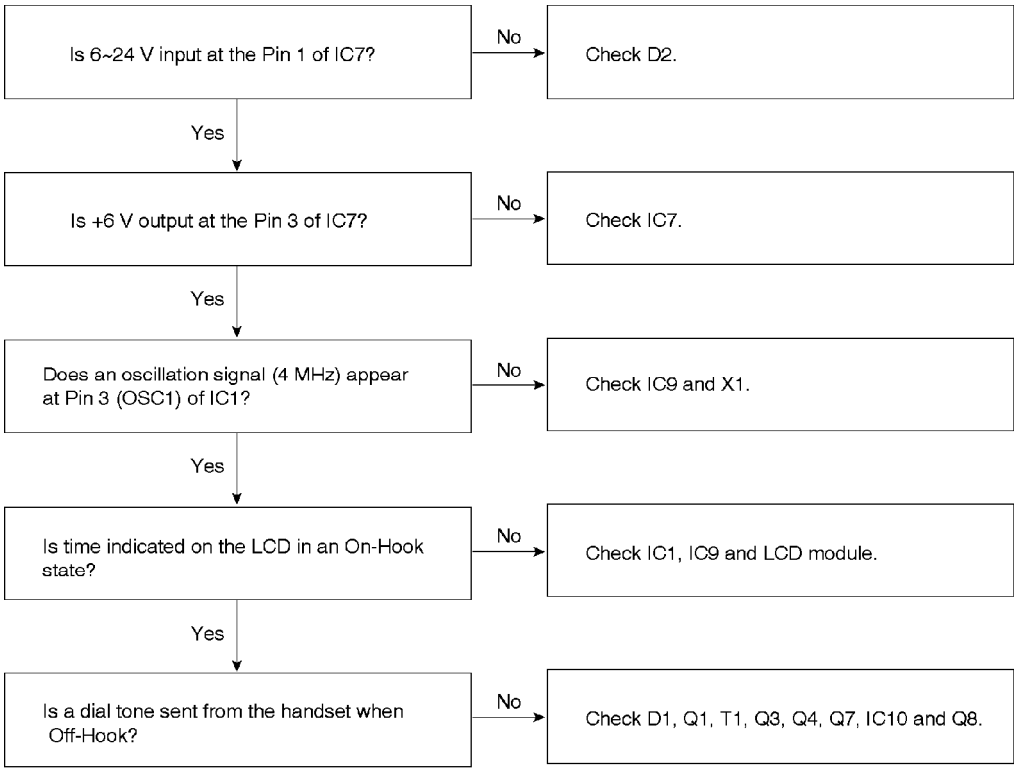
The busy tone detection for automatic redealing is executed as follows.
Telephone Line → D1 → Q1 → C3 → T1 → C91 → R91 → IC6 → D3 → R99 → Q20 → IC1 Pin 64

Circuit Diagram

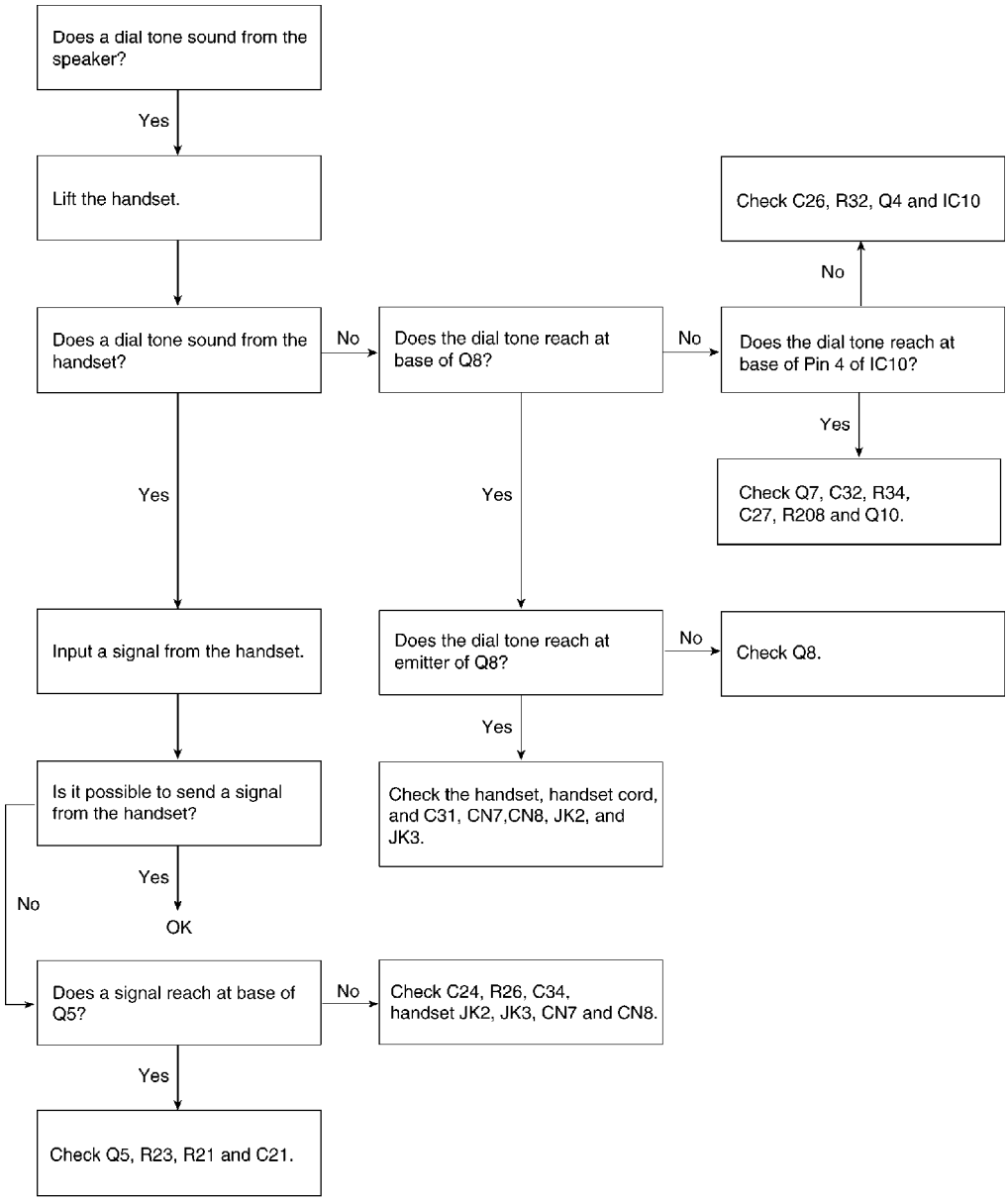


8. TROUBLESHOOTING GUIDE

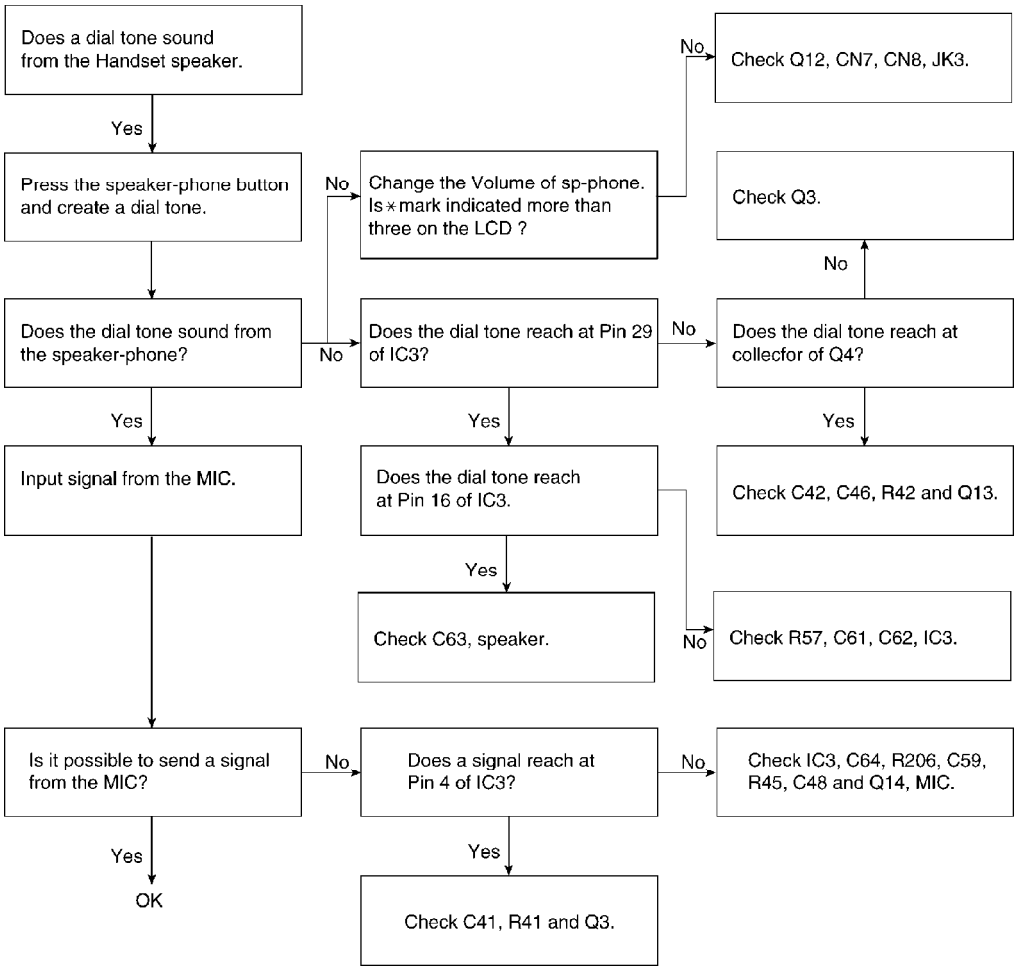
8.1. NO OPERATION


Is 6~24 V input at the Pin 1 of IC7?
No
Check D2.
Yes
Is +6 V output at the Pin 3 of IC7?
No
Check IC7.
Yes
Does an oscillation signal (4 MHz) appear at Pin 3 (OSC1) of IC1?
No
Check IC9 and X1.
Yes
Is time indicated on the LCD in an On-Hook state?
No
Check IC1, IC9 and LCD module.
Yes
Is a dial tone sent from the handset when Off-Hook?
No
Check D1, Q1, T1, Q3, Q4, Q7, IC10 and Q8.

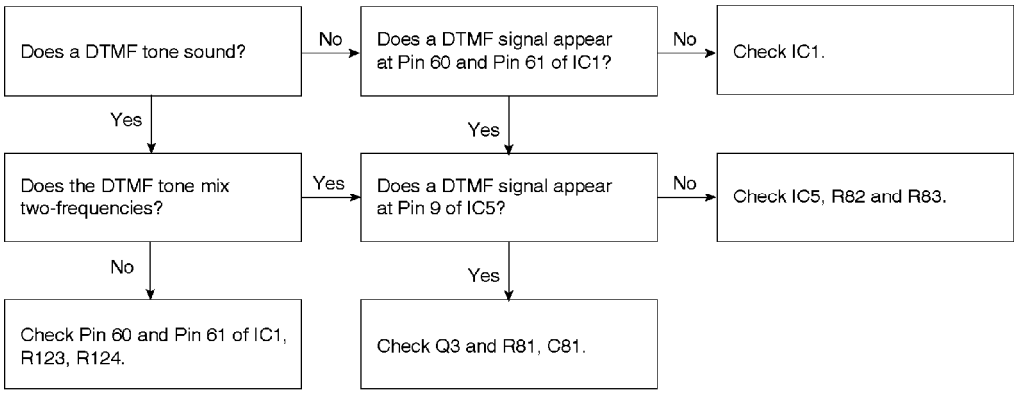
8.2. HANDSET TROUBLE


Does a dial tone sound from the speaker?
Yes
Lift the handset.
Does a dial tone sound from the handset?
No
Does the dial tone reach at base of Q8?
No
Does the dial tone reach at base of Pin 4 of IC10?
No
Check C26, R32, Q4 and IC10
Yes
Check Q7, C32, R34, C27, R208 and Q10.
Yes
Yes
Input a signal from the handset.
Does the dial tone reach at emitter of Q8?
No
Check Q8.
Yes
Check the handset, handset cord, and C31, CN7,CN8, JK2, and JK3.
Is it possible to send a signal from the handset?
Yes
OK
No
Does a signal reach at base of Q5?
No
Check C24, R26, C34, handset JK2, JK3, CN7 and CN8.
Yes
Check Q5, R23, R21 and C21.

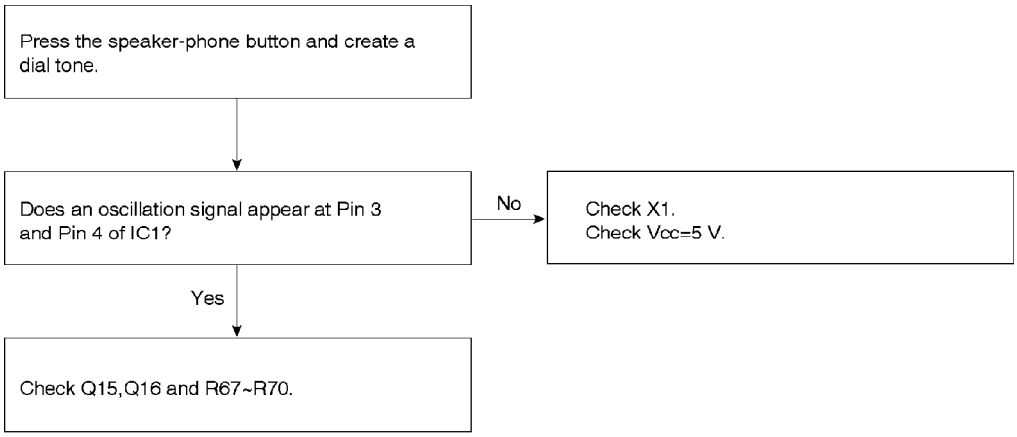
8.3. SPEAKER-PHONE TROUBLE


Does a dial tone sound from the Handset speaker.
Yes
Press the speaker-phone button and create a dial tone.
Does the dial tone sound from the speaker-phone?
No
Change the Volume of sp-phone. Is ∗ mark indicated more than three on the LCD ?
No
Check Q12, CN7, CN8, JK3.
Check Q3.
No
Does the dial tone reach at Pin 29 of IC3?
No
Does the dial tone reach at collecfor of Q4?
Yes
Yes
Yes
Input signal from the MIC.
Does the dial tone reach at Pin 16 of IC3.
Check C42, C46, R42 and Q13.
Yes
Check C63, speaker.
No
Check R57, C61, C62, IC3.
Is it possible to send a signal from the MIC?
No
Does a signal reach at Pin 4 of IC3?
No
Check IC3, C64, R206, C59, R45, C48 and Q14, MIC.
Yes
OK
Yes
Check C41, R41 and Q3.

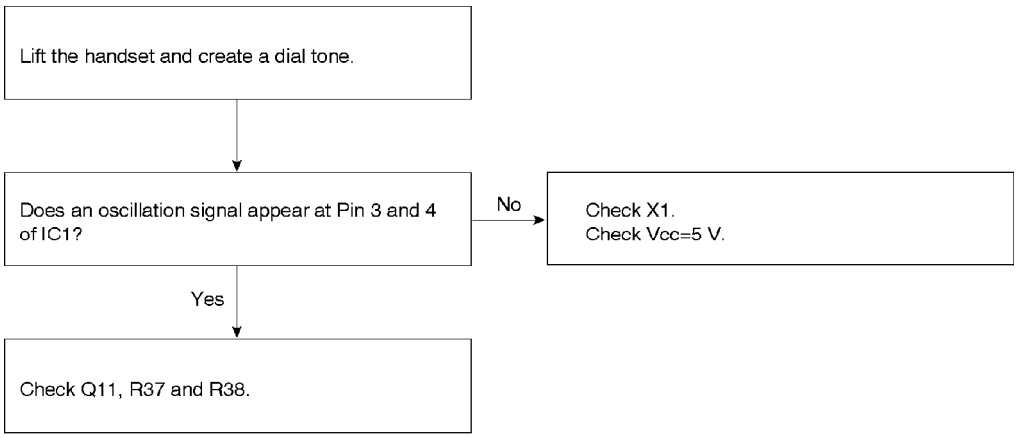
8.4. TONE DIAL TORUBLE


Does a DTMF tone sound?
No
Does a DTMF signal appear at Pin 60 and Pin 61 of IC1?
No
Check IC1.
Yes
Yes
Does the DTMF tone mix two-frequencies?
Yes
Does a DTMF signal appear at Pin 9 of IC5?
No
Check IC5, R82 and R83.
No
Yes
Check Pin 60 and Pin 61 of IC1, R123, R124.
Check Q3 and R81, C81.

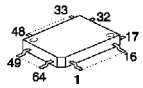
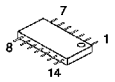
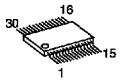
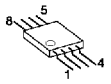
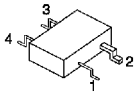
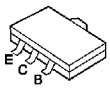
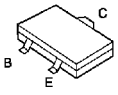
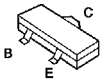
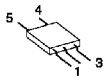
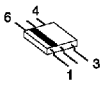
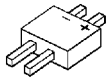
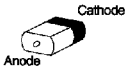
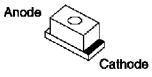
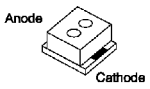
8.5. THE ELECTRONIC VOLUME OF THE SPEAKER-PHONE DOES NOT WORK


Press the speaker-phone button and create a dial tone.
Does an oscillation signal appear at Pin 3 and Pin 4 of IC1?
No
Check X1.
Check Vcc=5 V.
Yes
Check Q15,Q16 and R67~R70.

8.6. THE ELECTRONIC VOLUME OF HANDSET DOES NOT WORK


Lift the handset and create a dial tone.
Does an oscillation signal appear at Pin 3 and 4 of IC1?
No
Check X1.
Check Vcc=5 V.
Yes
Check Q11, R37 and R38.

9. TERMINAL GUIDE OF ICS, TRANSISTORS AND DIODES

 C2ABEE000011	 PQVITC7H00F PSVICD4066BS	 PQVISC77655V	 PQVINJM2904F	 PQVIBA06FPE2
 C0EBJ0000109	 AN6183SAE1	 B1ADGP000001	 2SC4081R PQVTDTA143XU PQVDTA143EU UN5213	 B1ABGB000020
 PSVTUMG2NTR PSVTUMA7NTR	 B1HBGBA00001	 PQVDS1ZB60F1	 PSVDUDZS13B MA111	 B3AAB0000111 PSVD1VGCT PSVD1SRCT
 PQVDBRPY1204				

10. HOW TO REPLACE THE FLAT PACKAGE IC

If you do not have the special tools (for example: SPOT HEATER) to remove the SPOT HEATER'S Flat IC, If you have solder (large amount) a soldering iron and a cutter knife, you can easily remove IC's even though large than 100 pin.

10.1. PREPARATION

- SOLDER / Sparkle Solder 115A-1, 115B-1 or Almit Solder KR-19, KR-19RMA

- Soldering iron / Recommended power consumption is between 30 W to 40 W. / Temperature of Copper Rod 662 ± 50°F (350 ± 10°C) / (An expert may handle a 60~80 W iron, but beginner might damage foil by overheating.)

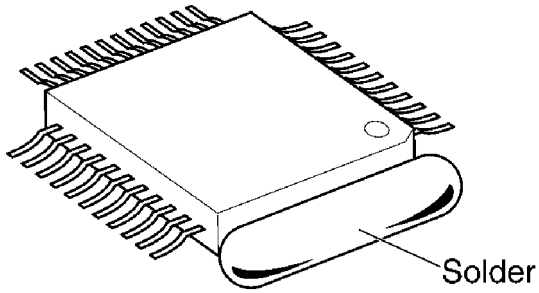
- Flux / HI115 Specific gravity 0.863 / (Original flux should be replaced daily.)

10.2. FLAT PACKAGE IC REMOVE PROCEDURE

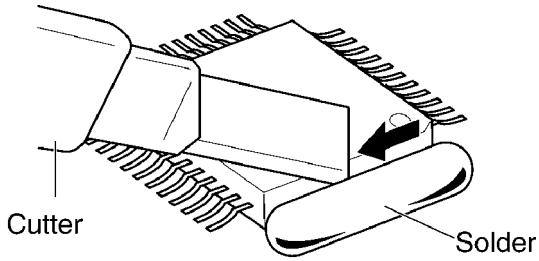
1. When all of the IC lead can not been seen at the standard degree, fill with large quantities of solder.

Note:

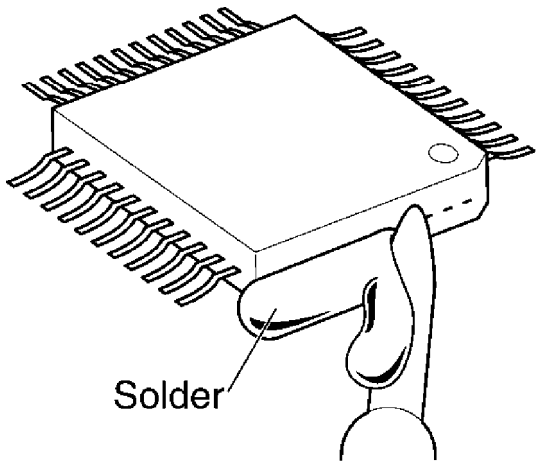
If you do not fill with solder and directly cut the IC lead with the cutter, stress may build up directly in the P.C.board's pattern. If you do not fill with large quantities of solder as in step 1 the P.C.board pattern may be removed.



2. Using a cutter, cut the lead at the source. (Cut the contents with the cutter lightly 5 or 6 times.)



3. Remove when the solder melts. (Remove the lead at the same time.)



After removing the Flat IC and when attaching the new IC, remove any of the excess solder on the land using the soldering wire, etc. If the excess solder is not removed from the land, the IC will slip and not be attached properly.

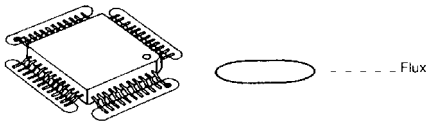
10.3. FLAT PACKAGE IC INSTALLATION PROCEDURE

1. Temporary fix FLAT PACKAGE IC by soldering on two marked

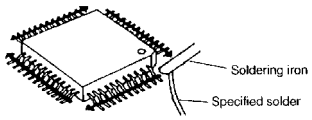
pins.

***Check the accuracy of the IC setting with the corresponding soldering foil.**

2. Apply flux for all pins of FLAT PACKAGE IC.



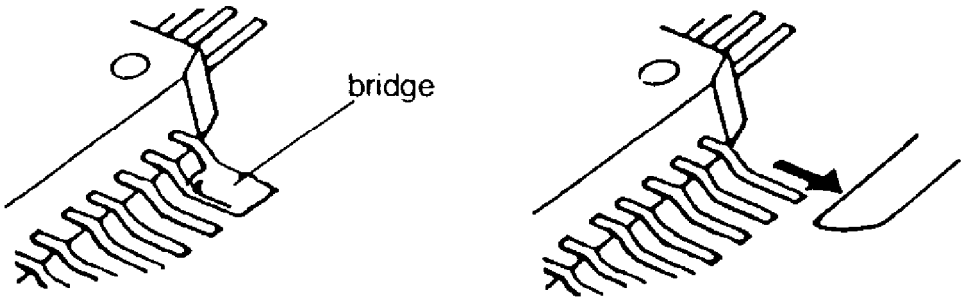
3. Solder using the specified solder, in the direction of the arrow, by sliding the soldering iron.



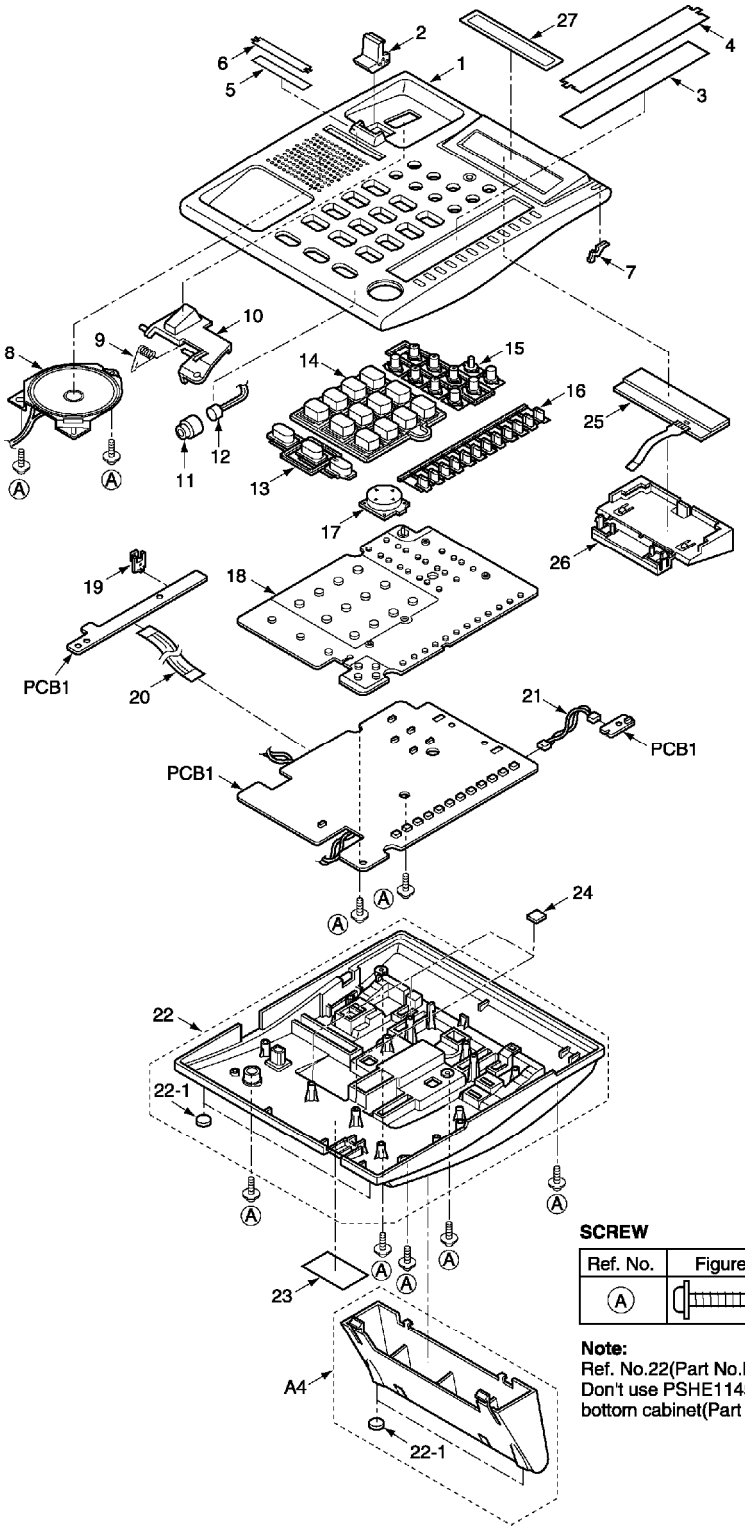
10.4. BRIDGE MODIFICATION PROCEDURE

1. Lightly re-solder the bridged portion.

2. Remove the remaining solder along pins using a soldering iron as shown in the figure below.



11. CABINET AND ELECTRICAL PARTS LOCATION

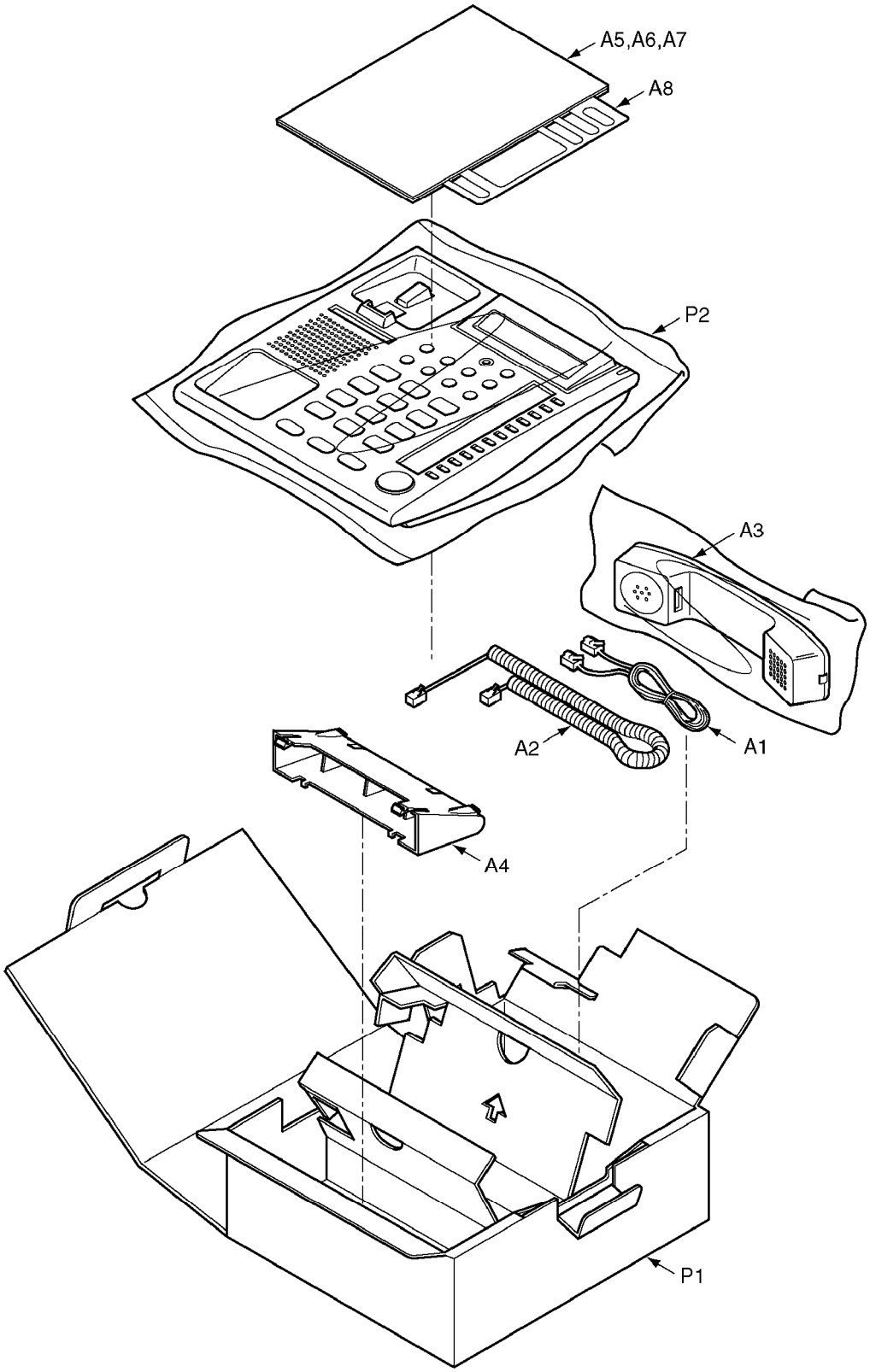


SCREW

Ref. No.	Figure	Part No.
Ⓐ		XTW3+S12P

Note:
Ref. No.22(Part No.PSHE1145Z) is used only 1st rot.
Don't use PSHE1145Z when you change the new bottom cabinet(Part No.PSYF1041Y1).

12. ACCESSORIES AND PACKING MATERIALS



13. REPLACEMENT PARTS LIST

Note:

1. **RTL (Retention Time Limited)**
   The marking (RTL) indicates that the Retention Time is limited for this item.
   After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability depends on the type of assembly and the laws governing parts and product retention. At the end of this period, the assembly will no longer be available.
2. **Important safety notice**
   Components identified by the ⚠ mark indicates special characteristics important for safety. When replacing any of these components, only use specified manufacture's parts.
3. **The S mark means the part is one of some identical parts. For that reason, it may be different from the installed part.**
4. **ISO code (Example : ABS-94HB) of the remarks column shows quality of the material and a flame resisting grade about plastics.**
5. **RESISTORS & CAPACITORS**
   Unless otherwise specified;
   All resistors are in ohms (Ω), k=1000 Ω , M=1000k Ω
   All capacitors are in MICRO FARADS (μ F), p= μ (μ F)
   ***Type & Wattage of Resistor**

Type

ERC:Solid ERD:Carbon PQRD:Carbon	ERX:Metal Film ERG:Metal Oxide ER0:Metal Film	PQ4R:Carbon ERS:Fusible Resistor ERF:Cement Resistor

Wattege

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W

*Type & Voltage of Capacitor

Type

ECFD:Semi-Conductor ECQS:Styrol PQCUV:Chip ECQMS:Mica	ECCD,ECKD,ECBT,PQCBC:Ceramic ECQE,ECQV,ECQG:Polyester ECEA,ECSZ:Electlytic ECQP:Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H:50V 2A:100V 2E:250V 2H:500V	05:50V 1:100V 2:200V	0F:3.15V 1A:10V 1V:35V 0J:6.3V	0J :6.3V 1A :10V 1C :16V 1E,25:25V	1V :35V 50,1H:50V 1J :63V 2A :100V

13.1. CABINET AND ELECTRICAL PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
1	PSKM1096Z1	TOP CABINET	ABS-94HB
2	PQKE10070Z3	HOOK KBOB	ABS-94HB
3	PSGD1065Z	CARD,TEL (LARGE)	
4	PSHR1264Z	COVER,TEL CARD (LARGE)	PC
5	PQHP532X	CARD,TEL (SMALL)	
6	PQHR576Z	COVER,TEL CARD (SMALL)	PC
7	PSGP1088Z	PANEL,LED LENZ	ABS-94HB
8	PQAS57P03Z	SPEAKER	
9	PSUS1018Z	SPRING	
10	PSBH1007Z1	BUTTON, HOOK	PC+ABS-94HB
11	PSHG1122Z	RUBBER PARTS, MIC COVER	
12	RJM142Z	MIC	
13	PSBX1102Z1	BUTTON, SP PHONE	ABS-94HB
14	PSBX1103Z1	BUTTON, DIAL	ABS-94HB
15	PSBX1101Z1	BUTTON, FUNCTION	ABS-94HB
16	PSBX1100Z1	BUTTON, CO	ABS-94HB
17	PSBC1032Z1	BUTTON, CURSOR	ABS-94HB
18	PSSX1022Z	KEYBOARD SWITCH	
19	PSBD1013Z1	KNOB, MODE	ABS-94HB
20	PSJE1028Z	FLAT CABLE	
21	PSJS02P10Z	CONNECTOR	
22	PSYF1041Y1	BOTTOM CABINET ASS'Y	PS-94HB
22-1	PSHA1002Z	RUBBER PARTS, LEGS	
23	PSGT2206Z	NAME PLATE	
24	PSHE1145Z	SPACER	ABS-94HB
25	L5DBBHC00003	LCD	ABS-94HB
26	PSHR1263Z	GUIDE, LCD	ABS-94HB
27	PSGP1089Z1	PANEL, LCD	PC-94VTM-2

13.2. ACCESSORIES AND PACKING MATERIALS

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PSJA1068Z	CORD, TEL	
A2	PSJA1043Z	CORD, HANDSET	
A3	PQJX2PSL01Y	HANDSET	
A4	PSYL1002Z1	STAND ASS'Y	PS-94HB
A5	PSQW1767Z	LEAFLET,QUICK REFERENCE GUIDE(STAND)	
A6	PSQW1773Z	LEAFLET,QUICK REFERENCE GUIDE(ENGLISH)	
A7	PSQW1774Z	LEAFLET,QUICK REFERENCE GUIDE(FRENCH)	
A8	PSGD1066Z	CARD, OVERLAY	
P1	PSPK1939Z	GIFT BOX	
P2	PQPP170Z	PROTECTION COVER	

13.3. MAIN BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PSWPT7730X	MAIN BOARD ASS'Y (RTL)	
		(ICS)	
IC1	C2ABEE000011	IC	
IC2	PQVITC7H00F	IC	
IC3	PQVISC77655V	IC	
IC5	PSVICD4066BS	IC	S
IC6	PQVINJM2904F	IC	
IC7	PQVIBA06FPE2	IC	
IC9	C0EBJ0000109	IC	
IC10	AN6183SAE1	IC	
		(TRANSISTORS)	
Q1	B1ADGP000001	TRANSISTOR(SI)	
Q2	B1ADGP000001	TRANSISTOR(SI)	
Q3	2SC4081R	TRANSISTOR(SI)	S
Q4	2SC4081R	TRANSISTOR(SI)	S
Q5	2SC4081R	TRANSISTOR(SI)	S
Q6	B1ABGB000020	TRANSISTOR(SI)	
Q7	PQVTDTA143XU	TRANSISTOR(SI)	
Q8	2SC4081R	TRANSISTOR(SI)	S
Q10	B1ABGB000020	TRANSISTOR(SI)	
Q11	PSVTUMG2NTR	TRANSISTOR(SI)	
Q12	PSVTUMG2NTR	TRANSISTOR(SI)	
Q13	B1ABGB000020	TRANSISTOR(SI)	
Q14	B1ABGB000020	TRANSISTOR(SI)	
Q15	PSVTUMG2NTR	TRANSISTOR(SI)	
Q16	PSVTUMG2NTR	TRANSISTOR(SI)	
Q18	UN5213	TRANSISTOR(SI)	
Q20	UN5213	TRANSISTOR(SI)	
Q101	PQVTDTA143EU	TRANSISTOR(SI)	
Q102	2SC4081R	TRANSISTOR(SI)	S
Q103	B1HBGBA00001	TRANSISTOR(SI)	
Q104	B1HBGBA00001	TRANSISTOR(SI)	
Q105	PSVTUMA7NTR	TRANSISTOR(SI)	
Q106	PSVTUMA7NTR	TRANSISTOR(SI)	
Q107	PSVTUMA7NTR	TRANSISTOR(SI)	
Q108	PSVTUMA7NTR	TRANSISTOR(SI)	
Q109	PSVTUMG2NTR	TRANSISTOR(SI)	
		(DIODES)	
D1	PQVDS1ZB60F1	DIODE(SI)	
D2	PQVDS1ZB60F1	DIODE(SI)	
D3	MA111	DIODE(SI)	
D4	MA111	DIODE(SI)	
D5	MA111	DIODE(SI)	
D6	PSVDUDZS13B	DIODE(SI)	
D11	B3AAB0000111	LED	
D12	PSVD1VGCT	LED	S
D13	PSVD1SRCT	LED	S
D14	PSVD1SRCT	LED	S

Ref. No.	Part No.	Part Name & Description	Remarks
D15	PSVD1SRCT	LED	S
D16	PSVD1SRCT	LED	S
D17	PSVD1SRCT	LED	S
D18	PQVDBRPY1204	LED	
D19	PQVDBRPY1204	LED	
D20	PQVDBRPY1204	LED	
D21	PQVDBRPY1204	LED	
D22	PQVDBRPY1204	LED	
D23	PQVDBRPY1204	LED	
D24	PQVDBRPY1204	LED	
D25	PQVDBRPY1204	LED	
D26	PQVDBRPY1204	LED	
D27	PQVDBRPY1204	LED	
D28	PQVDBRPY1204	LED	
D29	PQVDBRPY1204	LED	
D31	MA111	DIODE(SI)	
D32	MA111	DIODE(SI)	
D33	MA111	DIODE(SI)	
D34	MA111	DIODE(SI)	
		(JACKS AND CONNECTORS)	
JK1	PSJJ1T011Z	JACK	
JK2	PSJJ1T012Z	JACK	
JK3	PQJJ1C002Z	JACK	
CN1	PSJS06A74Z	CONNECTOR, 6P	
CN2	PSJP02A05Z	CONNECTOR, 2P	
CN3	PSJP02A05Z	CONNECTOR, 2P	
CN4	PSJP02A05Z	CONNECTOR, 2P	
CN5	PSJP02A05Z	CONNECTOR, 2P	
CN7	K1MN09B00059	CONNECTOR, 9P	
CN8	K1MN09B00059	CONNECTOR, 9P	
		(COMPONENTS COMBINATION)	
RA1	D1H84734A024	RESISTOR ARRAY	
RA2	D1H84724A024	RESISTOR ARRAY	
		(CAPACITORS)	
C2	PSCEV1CA100S	10	S
C3	ECEV1CA220	22	
C4	PQCUV1A225ZF	2.2	
C6	ECUV1H102KBV	0.001	
C7	ECUV1H821KBV	820p	
C8	ECUV1C224KBV	0.22	
C9	ECEV0JA101	100	
C12	ECUV1H222KBV	0.0022	
C14	ECUV1C473KBV	0.047	
C21	ECUV1C104KBV	0.1	
C22	ECUV1H103KBV	0.01	
C23	ECUV1H153KBV	0.015	

Ref. No.	Part No.	Part Name & Description	Remarks
C24	ECUV1C104KBV	0.1	
C25	PQCUV1A475ZF	4.7	
C26	ECUV1C104KBV	0.1	
C27	ECUV1C104KBV	0.1	
C28	ECUV1H332KBV	0.0033	
C29	ECUV1H222KBV	0.0022	
C30	ECEV0JA221WP	220	
C31	ECUV1A106ZF	10	
C32	ECUV1C104KBV	0.1	
C33	ECUV1H153KBV	0.015	
C34	ECUV1C104KBV	0.1	
C35	PQCUV1H105JC	1	
C36	ECUV1C104ZFV	0.1	
C41	ECUV1C104KBV	0.1	
C42	ECUV1C104KBV	0.1	
C44	ECUV1C473KBV	0.047	
C45	ECUV1C473KBV	0.047	
C46	ECUV1C473KBV	0.047	
C47	ECUV1H333KBV	0.033	
C48	ECUV1C104KBV	0.1	
C49	ECUV1H333KBV	0.033	
C50	PQCUV1A225ZF	2.2	
C51	PQCUV1A225ZF	2.2	
C52	PQCUV1A475ZF	4.7	
C53	ECEV0JA470	47	
C54	ECEV0JA101	100	
C55	ECUV1A106ZF	10	
C56	ECEV0JA101	100	
C57	PSCEV0JA102	1000	
C58	PQCUV1A475ZF	4.7	
C59	ECUV1C104KBV	0.1	
C60	ECUV1H223KBV	0.022	
C61	ECUV1C104KBV	0.1	
C62	ECUV1C473KBV	0.047	
C63	ECEV0JA101	100	
C64	ECUV1C104KBV	0.1	
C65	ECUV1H103KBV	0.01	
C66	ECUV1H103KBV	0.01	
C67	ECUV1H332KBV	0.0033	
C81	ECUV1C473KBV	0.047	
C84	ECUV1H103KBV	0.01	
C85	ECUV1H103KBV	0.01	
C91	ECUV1C104KBV	0.1	
C92	PQCUV1H105JC	1	
C93	ECUV1C473KBV	0.047	
C94	ECUV1H102KBV	0.001	
C95	ECUV1C104ZFV	0.1	
C96	ECUV1H103KBV	0.01	

Ref. No.	Part No.	Part Name & Description	Remarks
C101	ECUV1H103KBV	0.01	
C102	ECUV1H151JCV	150p	
C103	PQCUV1A225ZF	2.2	
C105	ECUV1H103KBV	0.01	
C106	ECUV1H103KBV	0.01	
C107	ECUV1C104ZFV	0.1	
C108	ECUV1H120JCV	12p	
C109	ECUV1H120JCV	12p	
C110	ECUV1C104ZFV	0.1	
C201	PSCEV1HA100	10	S
C203	PSCEV1EA470S	47	
C204	ECUV1C104ZFV	0.1	
C205	ECEV0JA101	100	
C206	PSCEV0JA102	1000	
		(RESISTORS)	
J6	ERJ3GEY0R00	0	
R1	ERJ3GEYJ104	100k	
R2	ERJ3GEYJ223	22k	
R3	ERJ3GEYJ182	1.8k	
R4	ERJ3GEYJ683	68k	
R5	ERJ3GEYJ470	47	
R6	ERJ3GEYJ681	680	
R7	ERJ3GEYJ273	27k	
R8	ERJ3GEYJ330	33	
R9	ERJ3GEYJ203	20k	
R10	ERJ3GEYJ272	2.7k	
R12	ERJ3GEYJ222	2.2k	
R13	ERJ3GEYJ474	470k	
R14	ERJ3GEYJ180	18	
R15	ERJ3GEYJ682	6.8k	
R16	ERJ3GEYJ560	56	
R17	ERJ3GEY0R00	0	
R21	ERJ3GEYJ272	2.7k	
R22	ERJ3GEYJ332	3.3k	
R23	ERJ3GEYJ121	120	
R24	ERJ3GEYJ274	270k	
R25	ERJ3GEYJ474	470k	
R26	ERJ3GEYJ472	4.7k	
R27	ERJ3GEYJ562	5.6k	
R28	ERJ3GEYJ222	2.2k	
R29	ERJ3GEYJ474	470k	
R30	ERJ3GEYJ104	100k	
R31	ERJ3GEYJ102	1k	
R32	ERJ3GEYJ123	12k	
R34	ERJ3GEYJ223	22k	
R35	ERJ3GEYJ563	56k	
R36	ERJ3GEYJ151	150	

Ref. No.	Part No.	Part Name & Description	Remarks
R37	ERJ3GEYJ273	27k	
R38	ERJ3GEYJ103	10k	
R39	ERJ3GEYJ473	47k	
R40	ERJ3GEYJ473	47k	
R41	ERJ3GEYJ472	4.7k	
R42	ERJ3GEYJ183	18k	
R43	ERJ3GEYJ474	470k	
R44	ERJ3GEYJ472	4.7k	
R45	ERJ3GEYJ332	3.3k	
R46	ERJ3GEYJ562	5.6k	
R47	ERJ3GEYJ562	5.6k	
R48	ERJ3GEYJ225	2.2M	
R49	ERJ3GEYJ303	30k	
R50	ERJ3GEYJ683	68k	
R51	ERJ3GEYJ275	2.7M	
R52	ERJ3GEYJ104	100k	
R53	ERJ3GEYJ473	47k	
R54	ERJ3GEYJ183	18k	
R55	ERJ3GEYJ154	150k	
R56	ERJ8GEYJ3R3	3.3	
R57	ERJ3GEYJ222	2.2k	
R58	ERJ3GEYJ104	100k	
R59	ERJ3GEYJ123	12k	
R60	ERJ3GEYJ152	1.5k	
R61	ERJ3GEY0R00	0	
R67	ERJ3GEYJ224	220k	
R68	ERJ3GEYJ124	120k	
R69	ERJ3GEYJ563	56k	
R70	ERJ3GEYJ273	27k	
R71	ERJ3GEYJ473	47k	
R72	ERJ3GEYJ473	47k	
R73	ERJ3GEYJ104	100k	
R74	ERJ3GEYJ562	5.6k	
R76	ERJ3GEYJ683	68k	
R77	ERJ3GEYJ393	39k	
R78	ERJ3GEYJ473	47k	
R79	ERJ3GEYJ393	39k	
R80	ERJ3GEYJ473	47k	
R81	ERJ3GEYJ153	15k	
R82	ERJ3GEYJ472	4.7k	
R83	ERJ3GEY0R00	0	
R84	ERJ3GEYJ684	680k	
R86	ERJ3GEYJ274	270k	
R87	ERJ3GEYJ103	10k	
R88	ERJ3GEYJ392	3.9k	
R89	ERJ3GEYJ104	100k	
R90	ERJ3GEYJ471	470	
R91	ERJ3GEYJ103	10k	

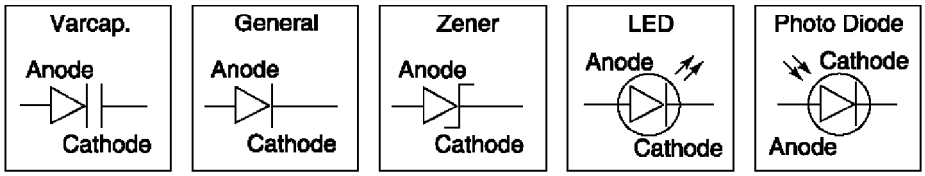
Ref. No.	Part No.	Part Name & Description	Remarks
R92	ERJ3GEYJ183	18k	
R93	ERJ3GEYJ103	10k	
R94	ERJ3GEYJ472	4.7k	
R95	ERJ3GEYJ474	470k	
R96	ERJ3GEYJ104	100k	
R97	ERJ3GEYJ103	10k	
R98	ERJ3GEYJ153	15k	
R99	ERJ3GEYJ103	10k	
R100	ERJ3GEYJ104	100k	
R101	ERJ3GEYJ221	220	
R102	ERJ3GEYJ221	220	
R103	ERJ3GEYJ103	10k	
R104	ERJ3GEYJ103	10k	
R105	ERJ3GEYJ101	100	
R106	ERJ3GEYJ222	2.2k	
R107	ERJ3GEYJ472	4.7k	
R108	ERJ3GEYJ102	1k	
R121	ERJ3GEYJ105	1M	
R122	ERJ3GEYJ332	3.3k	
R123	ERJ3GEY0R00	0	
R124	ERJ3GEY0R00	0	
R125	ERJ3GEYJ222	2.2k	
R126	ERJ3GEYJ561	560	
R127	ERJ3GEYJ222	2.2k	
R128	ERJ3GEYJ103	10k	
R131	ERJ3GEYJ271	270	
R132	ERJ3GEYJ390	39	
R133	ERJ3GEYJ271	270	
R134	ERJ3GEYJ390	39	
R135	ERJ3GEYJ271	270	
R136	ERJ3GEYJ390	39	
R137	ERJ3GEYJ271	270	
R138	ERJ3GEYJ221	220	
R139	ERJ3GEYJ390	39	
R140	ERJ3GEYJ560	56	
R155	ERJ3GEYJ104	100k	
R201	ERJ3GEYJ222	2.2k	
R206	ERJ3GEYJ102	1k	
R208	ERJ3GEYJ223	22k	
		(PHOTO ELECTRIC TRANSDUCER)	
PC1	0N3181	PHOTO COUPLER	
		(SWITCH)	
SW1	PSSS3A101Z	SWITCH	
		(TRANSFORMERS)	
T1	G5A1A0000003	TRANSFORMER	

Ref. No.	Part No.	Part Name & Description	Remarks
T2	PSLT9Z4A	TRANSFORMER	
		(CRYSTAL OSCILLATOR)	
X1	H0J400400011	CRYSTAL OSCILLATOR	

14. FOR THE SCHEMATIC DIAGRAM

Note:

1. **DC voltage measurements are taken with an oscilloscope or a tester with a ground.**
2. **The schematic diagrams and circuit board may be modified at any time with the development of new technology.**



Important safety notice
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of there components, use only manufacturer's specified parts.

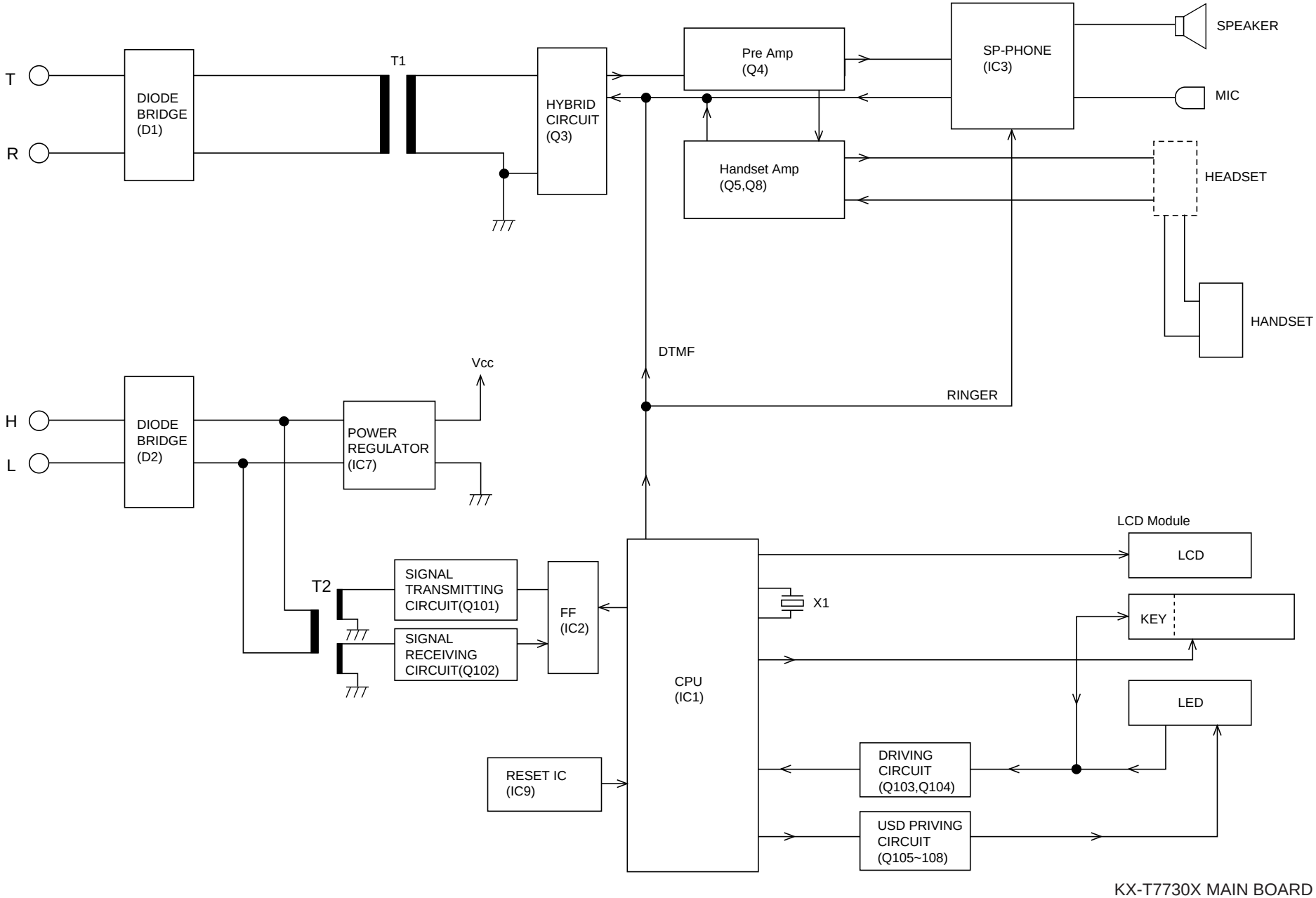
15. SCHEMATIC DIAGRAM

16. PRINTED CIRCUIT BOARD (MAIN BOARD)

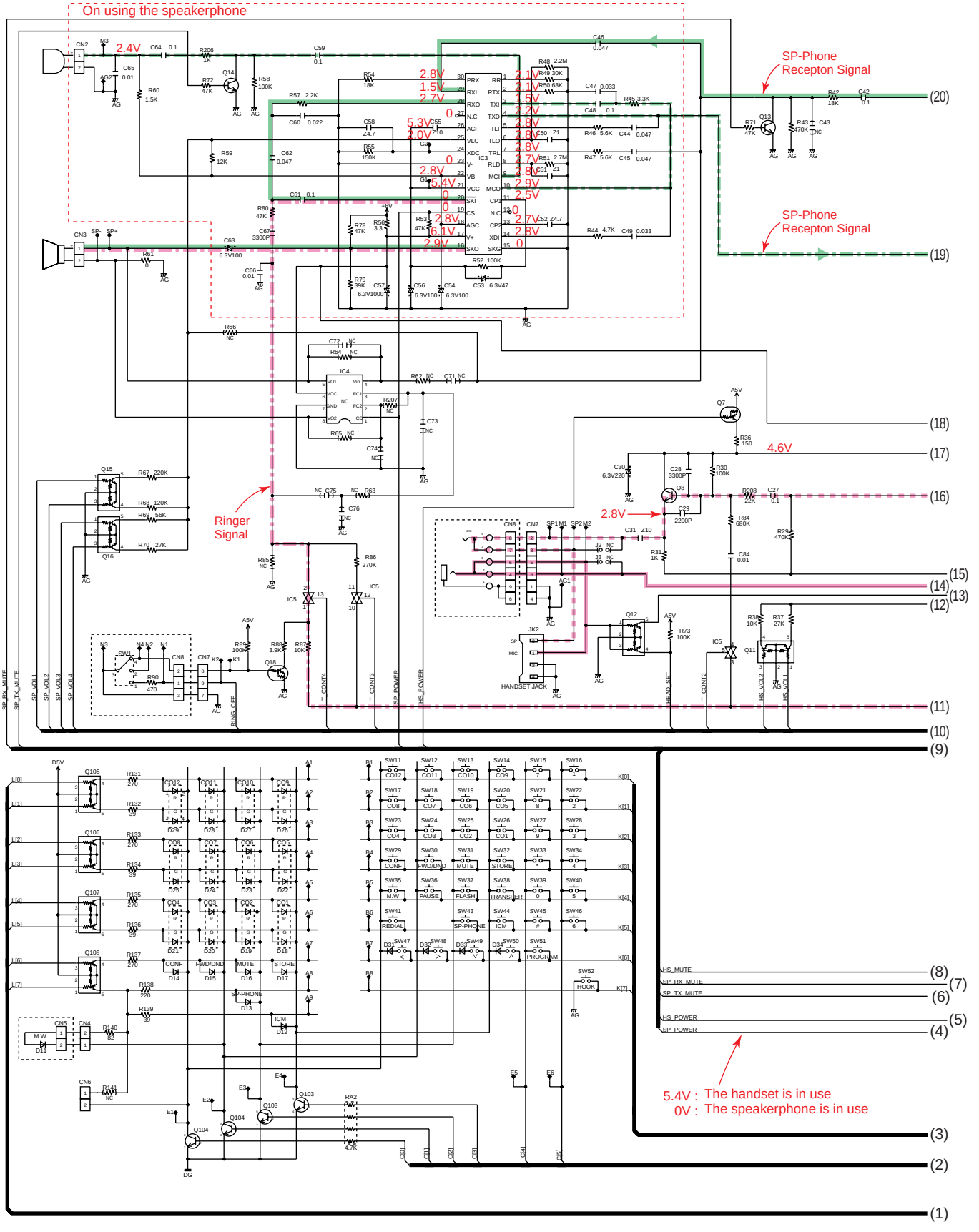
16.1. COMPONENT VIEW

16.2. BOTTOM VIEW

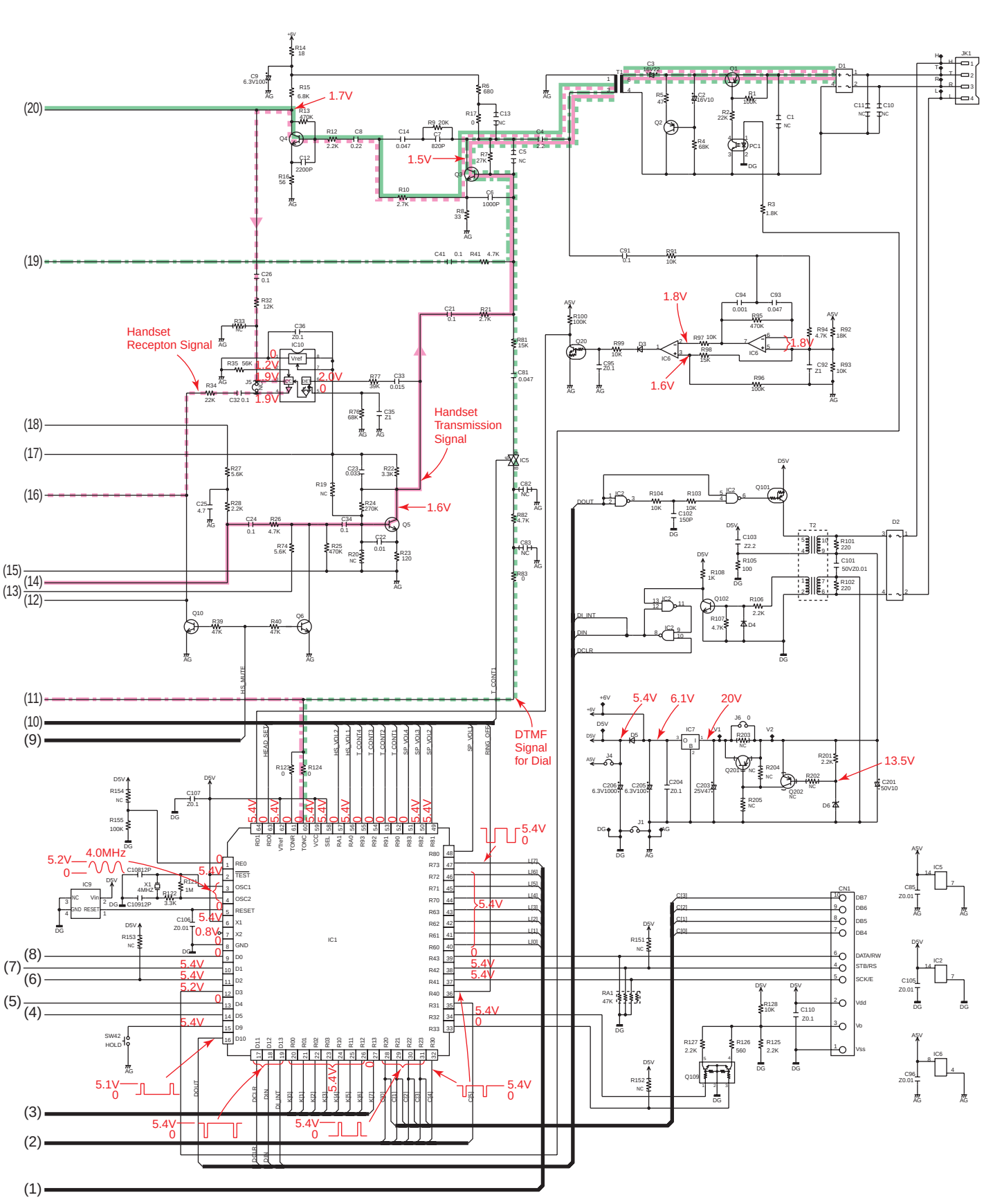
A,KXT7730X



KX-T7730X MAIN BOARD



KX-T7730X MAIN BOARD NO.1



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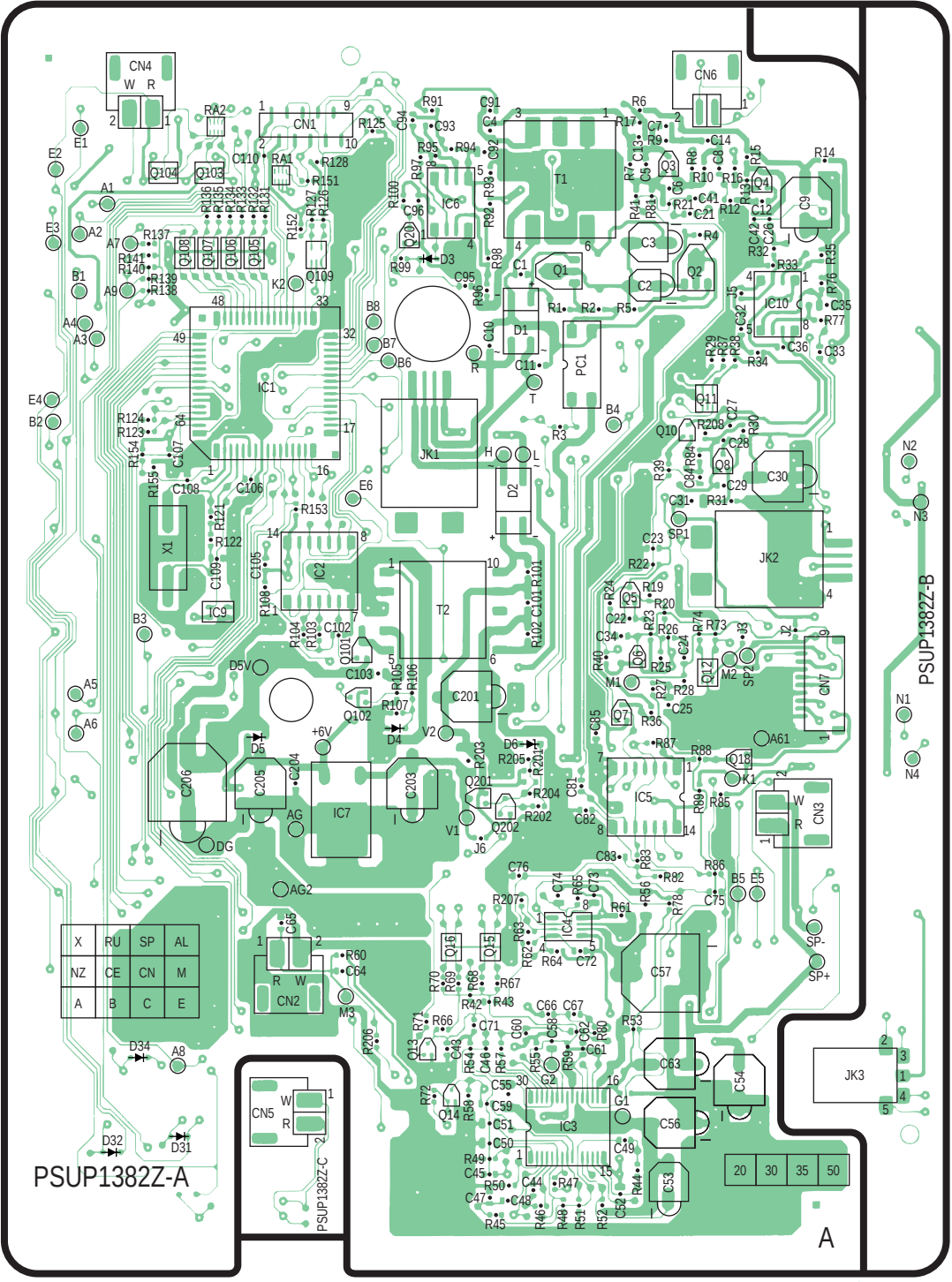
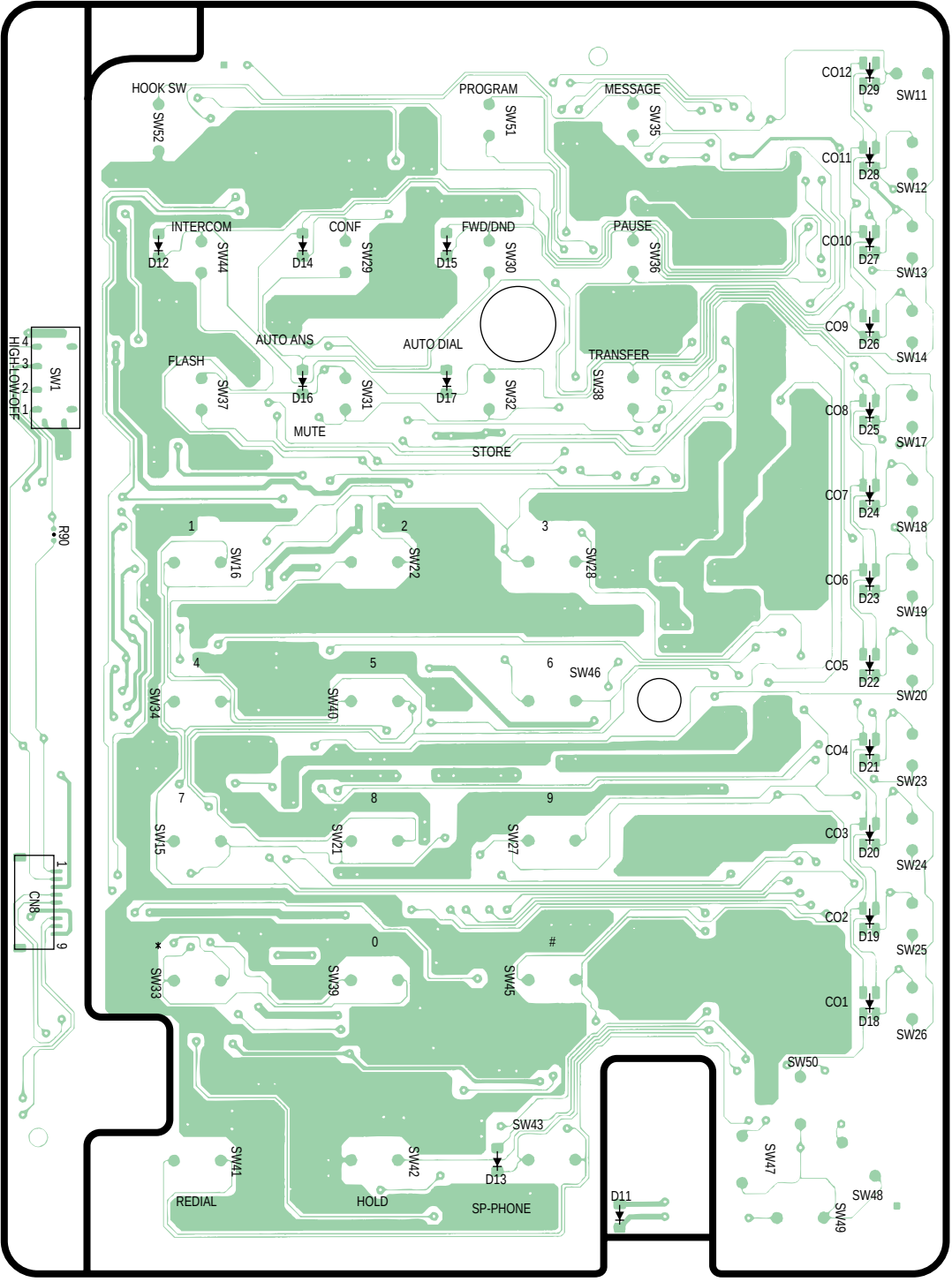


KX-T7730X MAIN BOARD
COMPONENT VIEW PSUP1382Z



KX-T7730X MAIN BOARD
BOTTOM VIEW PSUP1382Z